

Curriculum vitae

Federico Carpi

Contents

PERSONAL INFORMATION.....	2
WEBSITES.....	2
SCIENTIFIC METRICS.....	2
SHORT BIOGRAPHY.....	2
EDUCATION.....	3
ACADEMIC POSITIONS.....	3
Current Position.....	3
Previous Positions.....	3
Honorary Positions.....	3
SCIENTIFIC ACTIVITY.....	3
Main Research Topics.....	3
Smart material based biomedical and bioinspired mechatronic devices.....	3
Electrical and magnetic systems for non-invasive diagnostics.....	5
Coordination of Research Groups.....	5
Coordination of International Scientific Networks and Associations.....	6
Membership and Roles in International Scientific Associations.....	6
Editor of Journals, Books and Conferences.....	7
Editorial board member of journals.....	7
Guest editor of journal special issues.....	7
Editor of books.....	7
Editor of conference proceedings published as books.....	7
Organization of Conferences.....	8
Conference chairman/organizer.....	8
Conference committee member.....	8
Session chairman or organizer.....	11
Conference associate editor.....	12
Research Projects and Industrial Contracts.....	12
Speaker at Conferences, Seminars, Courses and Schools.....	15
Publications.....	25
Journal papers.....	26
Edited books.....	31
Book chapters.....	31
Papers in conference proceedings.....	33
Conference abstracts/short papers.....	39
Journal covers.....	45
Patents.....	46
Awards, Prizes and Honours.....	46
INSTITUTIONAL AND PROFESSIONAL ACTIVITIES.....	47
Institutional Responsibilities.....	47
Reviewer and Selection Committee Member for Academic/Research Positions.....	47
Reviewer and Expert Panel Member of Research Projects for the European Commission, National Agencies and Foundations.....	48
Member of PhD Evaluation Committees.....	49
TEACHING.....	50

PERSONAL INFORMATION



- First name: Federico
- Last name: Carpi
- Birth date: 10 February 1975
- Nationality: Italian
- ORCID: <https://orcid.org/0000-0001-8496-5085>
- Contact information:
Federico Carpi
University of Florence, Department of Industrial Engineering,
Via di S. Marta, 3 - 50139 Florence, Italy
E-mail: federico.carpi@unifi.it

WEBSITES

- Research Group: www.smart.unifi.it
- Google Scholar page: <http://scholar.google.com/citations?user=eaDScloAAAJandhl=en>

SCIENTIFIC METRICS

Dr Carpi's *h*-index and citation metrics are available on the following personal profile page of Google Scholar Citations: <http://scholar.google.com/citations?user=eaDScloAAAJandhl=en>

SHORT BIOGRAPHY

Federico Carpi is an Associate Professor in Biomedical Engineering at the University of Florence, Department of Industrial Engineering, Florence, Italy. He was born in Pisa, Italy, in 1975 and received from the University of Pisa the Laurea degree in Electronic Engineering in 2001, the Ph.D. degree in Bioengineering in 2005 and a second Laurea degree in Biomedical Engineering in 2008. From 2005 to 2012 he has been a post-Doc researcher at the University of Pisa, School of Engineering, Research Centre "E. Piaggio". From 2012 to 2016 he has been an Associate Professor (Reader) in Biomedical Engineering and Biomaterials at Queen Mary University of London, School of Engineering and Materials Science, UK. Since 2016, he is with the University of Florence, where he leads the 'SMART – Soft Matter ARTificial muscles and Transducers' research group (www.smart.unifi.it). Since 2014, he is also an Adjunct Professor at Beijing University of Chemical Technology, China, and since 2016 a Visiting Professor at Queen Mary University of London, UK. His research interests include smart material-based biomedical and bioinspired mechatronic devices, polymer artificial muscles, as well as electrical and magnetic systems for non-invasive diagnostics. From 2010 to 2014 he has been the Chair of the 'European Scientific Network for Artificial Muscles - ESNAM' (www.cost.eu/actions/MP1003), focused on transducers and artificial muscles based on electroactive polymers, and in 2015 he has coordinated in that field the publication of the first international standards. From 2013 to 2017 he has served as the first President of the 'European Society on Electromechanically Active Polymer Transducers and Artificial Muscles' (www.euroeap.eu). Since 2019, he is included in the ranking of the top 100,000 most influential scientists according to standardized citation metrics (source: PLoS Biology). He is an Editorial Board member of several international journals, and member of the scientific committees of several conferences. His publications include around 80 articles in international journals, 3 edited books and several contributions to books and conferences.

EDUCATION

- 2008: *Second Laurea degree: Biomedical Engineering*, University of Pisa, Italy.
- 2005: *PhD degree in Bioengineering*, University of Pisa, Italy.
- 2001: *First Laurea degree: Electronic Engineering*, University of Pisa, Italy.

ACADEMIC POSITIONS

Current Position

- 2016-present: *Associate Professor in Biomedical Engineering*, University of Florence, Department of Industrial Engineering, Florence, Italy.

Previous Positions

- 2012-2016: *Associate Professor (Reader) in Biomedical Engineering and Biomaterials*, Queen Mary University of London, School of Engineering and Materials Science, London, UK.
- 2005-2012: *Post-Doc Researcher*, University of Pisa, School of Engineering, Research Centre “E. Piaggio”, Pisa, Italy.

Honorary Positions

- 2016-2019: *Visiting Professor* at the School of Engineering and Materials Science, Queen Mary University of London, UK.
- 2014-present: *Adjunct Professor* at Beijing University of Chemical Technology, Beijing, China.

SCIENTIFIC ACTIVITY

Main Research Topics

Smart material based biomedical and bioinspired mechatronic devices

The development of a huge variety of new biomedical and bioinspired mechatronic systems poses challenges that share the need for innovative technologies for electromechanical transduction, so as to enable applications not feasible or even imaginable with conventional approaches.

Aimed at addressing this need, Prof. Carpi's research activities are focused on the development of innovative technologies based on electromechanically active polymer (EAP) transducers. The fundamental idea is to use ‘active materials’ that exhibit a mechanical response to an electrical stimulus, while offering, at the same time, light weight, mechanical compliance, compact size, simple structure, low power consumption, acoustically silent operation, and low cost. EAPs exhibit such properties and they are referred to as ‘smart materials’ because of their ability to deform upon electrical stimulation. In this respect they are also referred to as ‘artificial muscle materials’, as they can emulate the main functional properties of natural muscles.

The EAP sub-class known as ‘dielectric elastomer transducers’, studied by Prof. Carpi, shows the greatest potentialities today, in a number of fields of future application. Possible uses range from functional surrogates of natural muscles, to actuators for different kinds of systems, such

as mechatronic/robotic devices, tactile/haptic displays, tuneable optical and acoustic devices, etc.

Since his first graduation thesis, Prof. Carpi has been performing research activities in this field, first at the University of Pisa, Italy, then at Queen Mary University of London, and now at the University of Florence, where he leads the research group 'SMART - Soft Matter ARTificial muscles and Transducers'. The activities of the group are focused on the development of new devices and applications for biomedical and biomimetic/bioinspired systems based electromechanical transducers made of soft smart materials.

At international level, Prof. Carpi has a recognized reputation in this field:

- From 2010 to 2014 he has been the Chair of the 'European Scientific Network for Artificial Muscles (ESNAM)', focused on transducers and artificial muscles based on electroactive polymers, financially supported by the European Commission (www.cost.eu/actions/MP1003).
- Since 2011 he has been the initiator and general scientific organizer of the annual “EuroEAP: International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles” (www.euroeap.eu/conference).
- From 2013 to 2017 he has served as the first President of “EuroEAP – European Society for Electromechanically Active Polymer Transducers and Artificial Muscles” (www.euroeap.eu).
- In 2015 he has coordinated the publication of the first standards, as a result of a multicentre work involving 18 institutions from 9 countries.
- He is Editor of several Special Issues in peer-reviewed journals in the field.
- He is an invited author of a Perspective Article in the journal Science: F. Carpi, S. Bauer, D. De Rossi, “Stretching dielectric elastomer performance”, *Science*, Vol. 330(6012), pp. 1759-1761, 2010.

Prof. Carpi’s specific research activities in the field cover the following major areas involved by the whole developmental chain:

Design, manufacturing and testing of new devices

EAPs offer today great potentialities for the development of new devices. The research activities of Prof. Carpi in this ambit are aimed at designing, manufacturing and testing innovative actuators and sensors, most of which have been patented.

Development and characterization of new materials

The research activities of Prof. Carpi to design and manufacture new devices are paralleled by the necessary development of new elastomeric materials with improved electromechanical transduction properties, especially higher dielectric constant, to reduce the driving electric fields.

Demonstration of new applications

The aforementioned activities of Prof. Carpi within the areas of devices and materials are combined with the study and development of specific new applications. The most significant examples are listed below.

1. Biomedical and bioinspired instrumentation

- Assistive technologies:
 - Refreshable Braille displays for the blind people;
 - Vibro-tactile displays for sensory substitution for the blind people;
 - Bioinspired adaptive optical lenses for artificial vision systems.
- Systems for neuro-muscular rehabilitation:
 - Wearable tactile displays for virtual reality-based rehabilitation systems;
 - Wearable sensors for body posture detection;
 - Variable-stiffness orthotic systems for motor rehabilitation of the hand;

- MRI-compatible mechatronic systems for functional investigations and rehabilitations under MRI.
- Systems for medical training and surgical procedures:
 - Wearable tactile displays for virtual-reality-based training or tele-operation;
 - Tactile displays for compliance feedback in minimally invasive surgical tools.

2. Biotechnological instrumentation

- Systems for biomimetic mechanical stimulation of cell cultures for tissue engineering;
- Bioinspired peristaltic pumps for bio-technology.

Study of possible applications also in other fields

Besides biomedical and bioinspired applications, Prof. Carpi's research activities on EAP transducers occasionally explore different fields as well. Some examples are:

- Lightweight space structures;
- Tuneable electronic systems.

Electrical and magnetic systems for non-invasive diagnostics

Invention of a technique to magnetically control gastrointestinal navigations of endoscopic capsules

As an alternative to traditional endoscopic systems for explorations of the digestive tube, the use of so-called endoscopic capsules is progressively increasing today, as a non-invasive and conformable technology. However, the diagnostic efficacy of this technology is currently significantly limited by the impossibility of controlling the motion of the capsule, which proceeds randomly, by means of visceral peristalsis. To solve this problem, Prof. Carpi has proposed an award-winning technique that adopts magnetic fields to manoeuvre the capsule from the exterior of the body. Furthermore, he has demonstrated, with tests in pigs, in vivo, the applicability for such a purpose of a commercial robotic system (currently used in a different field). The work has been performed in cooperation with an US company and university (Stereotaxis, Inc and Washington University School of Medicine, St. Louis).

The results of the work have gained the cover of the journal *IEEE Transactions on Biomedical Engineering*, Vol. 58(2), 2011.

The magnetic control technique is internationally considered today as the most promising solution to solve the motion control problem of endoscopic capsules.

Invention of techniques for non-invasive detections of electroretinographic and electrocochleographic biopotentials

Conventional techniques for detection of bioelectric potentials generated by the retina in response to a light stimulus (electroretinography) or by the cochlea in response to an auditory stimulus (electrocochleography) rely on highly uncomfortable electrodes, which have to be arranged in contact with the cornea (or the conjunctiva) or which have to penetrate (or contact) the tympanic membrane, respectively. To avoid the need for such electrodes, Prof. Carpi has proposed and developed two non-invasive techniques, both of which rely on the use of a physiological conductive solution acting as a distributed electrical interface between an external conductor and the surface of the eye or the tympanic membrane. As compared to conventional techniques, the new method is much more comfortable and, at the same time, improves the stability and the reproducibility of the measurement.

Coordination of Research Groups

- Year 2012 – to present:

Head of the research group 'SMART – Soft Matter ARtificial muscles and Transducers' at the Department of Industrial Engineering, University of Florence, Italy, and earlier (years 2012 – 2016) at Queen Mary University of London, School of Engineering and Materials Science, London, UK.

- Years 2005 – to 2012:
Coordinator of the “Artificial Muscles and Smart Materials” Research Group at the Interdepartmental Research Centre "E. Piaggio" of the University of Pisa, Italy.

Coordination of International Scientific Networks and Associations

- Years 2013 – 2017:
Elected First President of “EuroEAP – European Society for Electromechanically Active Polymer Transducers and Artificial Muscles” (www.euroeap.eu).
- Years 2010 – 2014:
Founder and Coordinator of the “European Scientific Network for Artificial Muscles – ESNAM”. The network was aimed at promoting the scientific and technological development of artificial muscle systems based on electromechanically polymers, gathering all the outstanding European research centres in the field, and several companies either developing electroactive polymer transducers (such as Bayer, Danfoss and Optotune) or having an interest as end users (such as Philips, Festo, Ossur and FIAT Research Center). The network gathered 74 institutions from 31 countries. From 2010 to 2014 the network was awarded with a European COST Action grant – MP1003 (www.cost.eu/actions/MP1003).

Membership and Roles in International Scientific Associations

- Years 2017 – pres:
Honorary Member, “European Society for Electromechanically Active Polymer Transducers and Artificial Muscles” (www.euroeap.eu).
- Years 2013–2017:
Elected First President, “European Society for Electromechanically Active Polymer Transducers and Artificial Muscles” (www.euroeap.eu).
- Year 2012:
Founding Member, “European Society for Electromechanically Active Polymer Transducers and Artificial Muscles” (www.euroeap.eu).
- Years 2010–2014:
Coordinator, “ESNAM - European Scientific Network for Artificial Muscles” (www.cost.eu/actions/MP1003).
- Year 2008:
Founding Member, “BIOKON International - The Biomimetics Association” (www.biokon-international.com).

Editor of Journals, Books and Conferences

Editorial board member of journals

- *Frontiers in Bioengineering and Biotechnology - Biomaterials* section, 2022-present;
- *Sensors and Actuators Reports*, 2021-present;
- *Actuators*, 2020-present;
- *Int. Journal of Smart and Nano Materials*, 2016-present;
- *Biomimetics*, 2015-present;
- *Frontiers in Robotics and AI - Soft Robotics* section, 2015-present;
- *Int. Journal of Sports and Exercise Medicine*, 2015-present;
- *Extreme Mechanics Letters*, 2014-present;
- *Biomaterials and Biomedical Engineering Journal*, 2013-2015;
- *Int. Journal of Gastroenterology Disorders & Therapy*, 2013-2017;
- *Applied Scientific Reports*, 2013-present;
- *IEEE Transactions on Mechatronics*, 2013-2016;
- *Frontiers in Bioengineering and Biotechnology - Bionics & Biomimetics* section, 2012-2022;
- *World Journal of Gastrointestinal Endoscopy*, 2010-present;
- *Expert Review of Medical Devices*, 2009-present;
- *Bioinspiration & Biomimetics*, 2009-2019.

Guest editor of journal special issues

- *Smart Materials and Structures (Publisher: Institute Of Physics)*:
E. Jager, A. Conn, F. Carpi, A. Richter, "Selected Papers from EuroEAP 2022".
- *International Journal of Smart and Nano Materials (Publisher: Taylor and Francis)*:
F. Carpi, J. Busfield, M. Tian, L. Zhang, Guest Editors, "Advanced functional elastomers: Europe meets Asia", Vol. 6(4), 2016.
- *Smart Materials and Structures (Publisher: Institute Of Physics)*:
F. Carpi, F. Vidal, E. Jager, A. Ladegaard Skov, I. Graz, Guest Editors, "Electromechanically active polymer transducers: Research in Europe", Vol. 22, 2013.
- *Bioinspiration and Biomimetics (Publisher: Institute Of Physics)*:
F. Carpi, R. Erb, G. Jeronimidis, Guest Editors, "Biomimetics of Movement", Vol. 6(4), 2011.
- *IEEE/ASME Transaction on Mechatronics (Publisher: IEEE)*:
F. Carpi, R. Kornbluh, P. Sommer-Larsen, D. De Rossi and G. Alici, Guest Editors, "Electroactive Polymer Mechatronics", Vol. 16(1), 2011.
- *Polymer International (Publisher: Wiley)*:
F. Carpi, Guest Editor, "Electromechanically active polymers", Vol. 59(3), 2010.

Editor of books

See the section Publications.

Editor of conference proceedings published as books

- Y. Bar-Cohen, F. Carpi, Editors, *Smart Structures and Materials 2011: Electroactive Polymer Actuators and Devices*, Proc. of SPIE, Vol. 7976, 2011.

- P. Vincenzini, Y. Bar-Cohen, F. Carpi, Editors, *Artificial Muscle Actuators Using Electroactive Polymers*, Advances in Science and Technology, Vol. 61, 2009.

Organization of Conferences

Conference chairman/organizer

- **2022:** *Conference Chairman* of “EuroEAP 2022 - Tenth International Conference on Electromechanically Active Polymer Transducers & Artificial Muscles”, Chianciano Terme, Italy, 7-9 June 2022.
- **2012–pres.:** *Conference co-Organizer*, “Annual EuroEAP International Conference on Electromechanically Active Polymer Transducers & Artificial Muscles”, moving across Europe.
- **2014:** *Conference Chairman* of “EAP Workshop 2014: Electromechanically Active Polymer Transducers and Artificial Muscles”, London, UK, 25-26 November 2014.
- **2011:** *Conference Chairman* of “EuroEAP 2011 – First International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Pisa, Italy, 8-9 June 2011.
- **2011:** *Conference Co-Chairman* of “SPIE Smart Structures and Materials: Electroactive Polymer Actuators and Devices 2011”, San Diego, USA, 7-10 March 2011.
- **2008:** *Coordinator of the International Advisory Board* of the Session ‘Artificial muscle actuators using electroactive polymers’ of the international conference “CIMTEC 2008: Smart materials, structures and systems”, Acireale, Italy, 8-13 June 2008.

Conference committee member

2022

- *Member of the Organizing Committee* of “TERMC 2022 - International Conference on Tissue Engineering and Regenerative Medicine, 2nd edition”, Online, 16-17 September 2022.
- *Member of the Scientific and Programme Committees* of “EuroEAP 2022 – Tenth International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles, Chianciano Terme, Italy, 7-9 June 2022.

2021

- *Member of the Scientific and Programme Committees* of “EuroEAP 2021 – International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles, Online, 1-3 June 2021.

2020

- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices XXII”, SPIE Society, Online, 27 April - 8 May 2020.

2019

- *Member of the Scientific and Programme Committees* of “EuroEAP 2019 – Ninth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Dresden, Germany, 4-6 June 2019.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices XXI”, SPIE Society, Denver, USA, 3-7 March 2019.

2018

- *Member of the Scientific Committee* of “XIX Congresso Nazionale della Società Italiana di Analisi del Movimento in clinica (SIAMOC 2018)”, Firenze, 3-6 October 2018.
- *Member of the Programme Committee* of “Living Machines 2018 - the Seventh International Conference on Biomimetics and Biohybrid Systems”, Paris, France, 16-19 July 2018.
- *Member of the Scientific Committee* of “Sixth National Congress of Bioengineering (GNB 2018)”, Milano, Italy, 25-27 June 2018.
- *Member of the Scientific and Programme Committees* of “EuroEAP 2018 – Eighth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Lyon, France, 5-6 June 2018.
- *Member of the Conference Editorial Board* of “RoboSoft 2018 - the 2018 IEEE International Conference on Soft Robotics”, Livorno, Italy, 24-28 April 2018.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices XX”, SPIE Society, Denver, USA, 5-8 March 2018.

2017

- *Member of the Programme Committee* of “Living Machines 2017 - the Sixth International Conference on Biomimetics and Biohybrid Systems”, Stanford University, California, USA, 25-28 July 2017.
- *Member of the Scientific and Programme Committees* of “EuroEAP 2017 – Seventh International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Cartagena, Spain, 6-7 June 2017.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices XIX”, SPIE Society, Las Vegas, USA, 26-29 March 2017.

2016

- *Member of the Programme Committee* of “Living Machines 2016 - the Fifth International Conference on Biomimetics and Biohybrid Systems”, Edinburgh, Scotland, 18-22 July 2016.
- *Member of the Scientific and Programme Committees* of “EuroEAP 2016 – Sixth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Copenhagen, Denmark, 15-16 June 2016.
- *Member of the International Advisory Board* of Symposium H "Electroactive Polymers and Shape Memory Polymers: Advances in Materials and Devices" of “CIMTEC 2016 - 5th International Conference - Smart and Multifunctional Materials, Devices, Structures", Perugia, Italy, 5-10 June 2016.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices XVIII”, SPIE Society, Las Vegas, USA, 21-24 March 2016.

2015

- *Invited Member (invitation declined)* of the *Programme Committee* of “International Conference on Advanced Mechatronics, Intelligent Manufacture, and Industrial Application 2015 (ICAMIMIA 2015)”, Surabaya, Indonesia, 15-17 October 2015.
- *Member of the Programme Committee* of “Living Machines 2015 - the Fourth International Conference on Biomimetics and Biohybrid Systems”, Barcelona, Spain, 28-31 July 2015.
- *Member of the Scientific and Programme Committees* of “EuroEAP 2015 – Fifth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Tallinn, Estonia, 9-10 June 2015.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices XVII”, SPIE Society, San Diego, USA, 8-12 March 2015.

2014

- *Member of the Scientific and Programme Committee* of “EAP Workshop 2014: Electromechanically Active Polymer Transducers and Artificial Muscles”, London, UK, 25-26 November 2014.
- *Member of the Programme Committee* of “Living Machines 2014 - the Third International Conference on Biomimetics and Biohybrid Systems”, Milan, Italy, 30 July- 1 August, 2014.
- *Member of the Programme Committee* of AIM 2014, IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Besançon, France, 8-11 July 2014.
- *Member of the Scientific and Programme Committee* of “EuroEAP 2014 – Fourth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Linköping, Sweden, 10-11 June 2014.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices”, SPIE Society, San Diego, USA, 10-13 March 2014.

2013

- *Member of the Programme Committee* of “Living Machines 2013 - the Second International Conference on Biomimetics and Biohybrid Systems”, London, 29 July - 2 August 2013.
- *Member of the Scientific and Programme Committees* of “EuroEAP 2013 – Third International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Dübendorf (Zürich), Switzerland, 25-26 June 2013.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices”, SPIE Society, San Diego, USA, 10-14 March 2013.

2012

- *Member of the Programme Committee* of “Living Machines 2012 - the First International Conference on Biomimetics and Biohybrid Systems”, Barcelona, Spain, 9-12 July 2012.
- *Member of the International Scientific Advisory Committee* of the international conference “Design and Nature 2012- Sixth International Conference on Comparing Design in Nature with Science and Engineering”, Coruna, Spain, 11-13 June 2012.
- *Member of the Scientific and Programme Committees* of “EuroEAP 2012 – Second International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Potsdam, Germany, 29-30 May 2012.

2011

- *Member of the Conference Committee* of the international conference NOMS (Nano-Opto-Mechanical-Systems), SPIE Optics and Photonics, San Diego, August 2011.
- *Member of the Scientific and Programme Committees* of “EuroEAP 2011 – First International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles”, Pisa, Italy, 8-9 June 2011.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices”, SPIE Society, San Diego, USA, 7-10 March 2011.

2010

- *Member of the International Scientific Advisory Committee* of the international conference “Design and Nature 2010 - Fifth International Conference on Comparing Design in Nature with Science and Engineering”, Pisa, Italy, 28-30 June 2010.
- *Member of the Programme Committee* of the “Actuator 2010 - International Conference and Exhibition on New Actuator Systems and Applications”, Bremen, Germany, 14 June 2010.

- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices”, SPIE Society, San Diego, USA, 8-11 March 2010.

2009

- *Invited Member* (declined invitation) of *SPIE's 2010 Symposia Committee*.
- *Member of the Program Committee* of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices”, SPIE Society, San Diego, 9-12 March 2009.

Session chairman or organizer**2021:**

- *Chairman* of two sessions of “EuroEAP 2021 – International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles”, Online, 1-3 June 2021.

2015

- *Invited organiser* (declined invitation) of a mini-symposium at “The 2015 World Congress on Advances in Aeronautics, Nano, Bio, Robotics, and Energy (ANBRE15)”, Incheon, Korea, 23-26 August 2015.
- *Invited organiser* (declined invitation) of the "G4. Smart materials" session of the Biomaterials International 2015 conference, Kenting of Taiwan, 1-5 June 2015.
- *Invited chairman* (declined invitation) of the session “Bio-Inspired Materials” of the 4th Annual World Congress of Advanced Materials-2015 (WCAM-2015), Chongqing, China, 27-29 May 2015.
- *Invited chairman* (declined invitation) of the session “Smart Bionic Materials” of the 1st Annual World Congress of Smart Materials-2015 (WCSM-2015), Busan, Republic of Korea, 23-25 March 2015.

2014

- *Member of the Invited Session Chairs Committee* of AIM 2014, IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Besançon, France, 8-11 July 2014.
- *Invited chairman* (declined invitation) of the session “Bio-Inspired Materials” of the 3rd Annual World Congress of Advanced Materials-2014 (WCAM-2014), Chongqing, China, 6-9 June 2014.

2013

- *Member of the Invited Session Chairs Committee* of AIM 2013, IEEE/ASME International Conference on Advanced Intelligent Mechatronics”, Wollongong, Australia, 9-12 July 2013.

2011

- *Invited chairman* (declined invitation) of a session of the international conference “Biomimetic and Bioinspired Technologies” of the “ASME 2011 International Mechanical Engineering - Congress and Exposition”, Denver, USA, 14-16 November 2011.
- *Chairman* of a session of the international conference “6th World Congress on Biomimetics, Artificial Muscles and Nano-Bio”, Cergy-Pontoise, 25-27 October 2011.
- *Organizer* of 5 sessions (‘ESNAM - European Scientific Network for Artificial Muscles’ sessions) of the international conference “Smart Structures and Materials: Electroactive Polymer Actuators and Devices 2011”, San Diego, USA, 7-10 March 2011.

2010

- *Organizer* of 4 sessions (‘Biomimetics and Bioinspiration I-IV’) of the international conference “Design and Nature 2010 - Fifth International Conference on Comparing Design in Nature with Science and Engineering”, Pisa, Italy, 28-30 June 2010.

- *Chairman and organizer* of a session ('Polymer Actuators') of the international conference "Actuator 2010 - International Conference and Exhibition on New Actuator Systems and Applications", Bremen, 14 June 2010.
- *Chairman* of a session of the international conference "Smart Structures and Materials 2010: Electroactive Polymer Actuators and Devices", San Diego, USA, 8-11 March 2010.

2009

- *Chairman* of a session of the international conference "Medical Physics and Biomedical Engineering World Congress 2009", Munich, Germany, 7-12 September 2009.
- *Chairman* of two sessions of the international conference "Smart Structures and Materials 2009: Electroactive Polymer Actuators and Devices", San Diego, USA, 8-12 March 2009.

2008

- *Chairman* of a session of the international conference "IEEE/RSJ 2008 International Conference on Intelligent Robots and Systems (IROS 2008)", Nice, France, 22-26 September 2008.
- *Chairman* of the Session 'Artificial muscle actuators using electroactive polymers' of the international conference "CIMTEC 2008: Smart materials, structures and systems", Acireale, Italy, 8-13 June 2008.
- *Chairman* of a session of the international conference "Smart Structures and Materials 2008: Electroactive Polymer Actuators and Devices", San Diego, USA, 10-13 March 2008.

2007

- *Chairman* of a session of the international conference "Smart Structures and Materials 2007: Electroactive Polymer Actuators and Devices", San Diego, USA, 19-22 March 2007.

2006

- *Chairman* of two sessions of the international conference "Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices", San Diego, USA, 26 February – 2 March 2006.

Conference associate editor

- *Associate Editor* of "RoboSoft 2018 - the 2018 IEEE International Conference on Soft Robotics", Livorno, Italy, 24-28 April 2018.
- *Associate Editor* of "the 2014 IEEE/ASME International Conference on Advanced Intelligent Mechatronics", Besançon, France, 8-11 July 2014.
- *Associate Editor* of "IROS 2012 - the 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems", Vilamoura, Algarve, Portugal, 7-12 October 2012.

Research Projects and Industrial Contracts

Type	Contractor	Title	Ref. N.	Period	Budget	Role	
P39	Research contract	European Space Agency	Wearable sensors of astronaut postures	ESA Initial Support for Innovation programme - Open Discovery & Preparation activities, Contract 4000141620	2023-2026	90 k€	Principal Investigator
P38.	Marie Skłodowska-Curie Actions (MSCA) Doctoral Network	European Commission	SOFTWARE (SOFT actuators for Wearables, Exoskeletons, and Augmenting Robotics)	HORIZON-MSCA-2021 Project 101072920	2022-2026	260 k€	Principal Investigator
P37.	Research project	Ministero dell'Università e della Ricerca	AGE-IT (Ageing well in an ageing society)	PNRR project (PE8 Conseguenze e sfide dell'invecchiamento)	2022-2025	230 k€	Task leader

P36.	Research project	Ministero dell'Università e della Ricerca	Fit4MedRob (Fit for Medical Robotics)	PNRR project (Piano complementare)	2022-2025	200 k€	Task leader
P35.	Research project	Fondazione Cassa di Risparmio di Firenze	Biomedical Engineering laboratories	--	2022-2026	500 k€	Principal Investigator
P34.	Research project	Fondazione Cassa di Risparmio di Firenze	HAPTICS (Healthy Aging Programmes with Tactile Interfaces as a Cognitive Support)	n. 2020.1389	2022-2023	75 k€	Principal Investigator
P33.	Research project	Ministero dello Sviluppo Economico	AIDA (sistema di adattamento attivo di impedenza acustica a polimeri elettroattivi)	Proof of Concept (POC) MISE ARNO 2020 – POCARNO, CUP C56I20000020006	2021-2022	34 k€	Principal Investigator
P32.	Research project	Fondazione Cassa di Risparmio di Firenze	REHub - Rehabilitation Engineering Hub	--	2020-2021	75 k€	Co-Principal Investigator
P31.	Research project	Fondazione Cassa di Risparmio di Firenze	MOVE-SENSE (Monitoraggio dei movimenti di operatori sanitari con sensori indossabili intelligenti)	n. 2018.0979	2020-2021	35 k€	Principal Investigator
P30.	Industrial contract	GN Hearing Care Corporation	Electroactive polymer-based acoustic filters	--	2020-2021	29 k€	Principal Investigator
P29.	Research project	Regione Toscana	BMI-FOCUS (Brain machine interface in space manned missions: amplifying focused attention for error counterbalancing)	--	2018-2020	275 k€	Co-Principal Investigator
P28.	Research project	Regione Toscana	WELLNESS@WORK (Sistema personalizzabile per la tutela del benessere negli ambienti lavorativi)	--	2018-2019	111 k€	Principal Investigator
P27.	Industrial contract	GN Hearing Care Corporation	Acoustic properties of electroactive polymers	--	2018-2019	29 k€	Principal Investigator
P26.	Research contract	Queen Mary University of London	Development of dielectric elastomer actuator prototypes	--	2017	10 k€	Principal Investigator
P25.	Research contract	University of Delaware	Artificial muscle actuators for mechanizing a unilateral pediatric shoulder/elbow orthosis	--	2016-2018	15 k\$	Principal Investigator
P24.	PhD studentship	China Scholarship Council	New properties of water and implications for biomaterials and medical devices	--	2015-2018	Standard PhD studentship	Principal Investigator
P23.	Marie Skłodowska-Curie Action, Innovative Training Network	European Commission	MICACT (MICroACTuators)	H2020-MSCA-ITN-2014, grant n° 641822	2015-2018	273 k€	Principal Investigator
P22.	PhD studentship	Queen Mary University of London, Institute of Bioengineering	Study of new properties of water for the development of biomaterials and medical devices	--	2014-2017	Standard PhD studentship	Principal Investigator
P22.	Research project	Centre for Public Engagement Large Award (UK)	PauseInMotion	--	2014-2016	36 k€	Principal Investigator
P21.	Research project	National Science Foundation (USA)	EFRI-ODISSEI (Novel Perpetual Reconfigurable and Multi-Band Origami Folding/Unfolding Electromagnetic Systems)	--	2014-2018	--	Scientific consultant

			for Cognitive Intelligence Applications)				
P20.	Research project	National Institute for Health Research (UK)	Co-design of hand therapy devices for epidermolysis bullosa	Grant II-LB-0813-20002	2014-2017	280 k€	Principal Investigator
P19.	Research project	Italian Ministry for Education, University and Research (IT)	MIND (Ingegnerizzazione di modelli d'organo di interesse fisiologico e patologico per l'indagine di disturbi legati all'invecchiamento)	PRIN 2010-2011	2013-2016	80 k€	WP leader
P18.	Research project	European Commission	STAMAS (Smart technology for artificial muscle applications in space)	FP7- SPA.2012.3.1-01, grant n° 312815	2013-2016	93 k€	Co-applicant.
P17.	PhD studentship	China Scholarship Council	Electrical Breakdown of Dielectric Elastomer Actuator Materials	--	2012-2015	Standard PhD studentship	Principal Investigator
P16.	Research project	European Commission	AUTORECON (Autonomous co-operative machines for highly reconfigurable assembly operations of the future)	FP7-FoF.NMP.2011-2, grant n° 285189	2011-2014	40 k€	Scientific consultant
P15.	COST Action	COST / European Science Foundation	ESNAM (European Scientific Network for Artificial Muscles)	COST Action CGA-MP1003-1	2010-2014	620 k€	Coordinator (Chair)
P14.	Research project	Fondazione Cassa di Risparmio di Pisa (IT)	POLOPTEL (Polymer systems with new optical, electrical and adhesive functionalities)	--	2011-2014	100 k€	-Scientific Committee Member -Task leader
P13.	Research project	European Commission	CEEDS (The collective experience of empathic data systems)	FP7-ICT-2009.8.4, grant n° 258749	2010-2014	100 k€	Task leader (wearable vibrotactile displays)
P12.	Research project	European Commission	VIATORS (Variable impedance actuation systems embodying advanced interaction behaviours)	FP7-ICT-2007-3, grant n° 231554	2009-2012	130 k€	Task leader (EAP actuators)
P11.	Research contract	Thales Alenia Space Italia (IT)	EAP sensors installation on IMOD ribbons	TAS-IT 2951557497	2009	5 k€	Scientific co-responsible
P10.	Research contract	L'Oreal (FR)	Wearable actuators to activate skin mechanotransduction	L'Oreal C080302	2008	24 k€	Scientific co-responsible
P9.	Research contract	European Space Agency	Non invasive brain-machine interfaces	ESTEC/Contract No. 19706/06/NL/HE	2006	12 k€	Scientific responsible
P8.	Research contract	European Space Agency	Contractile linear actuator and sensor based on dielectric elastomers	ESTEC/Contract No. 19789/06/NL/PA	2006	32 k€	Scientific responsible
P7.	Research contract	European Space Agency	Bio-inspired distributed system for thermal (or particles) transport	ESTEC/Contract No. 19704/06/NL/HE	2006	28 k€	Scientific responsible
P6.	Research contract	Toyota Europe (BE)	Polymer based artificial muscle	TMEM / CP Contract 28-1-05	2005	32 k€	Scientific co-responsible
P5.	Research contract	European Space Agency	EAP actuators	Kayser Italia- CP / Contract No. 18548/NL/PA	2004-2007	320 k€	WP leader
P4.	Research contract	European Space Agency	EAP-based artificial muscles as an alternative to space mechanisms	ESTEC/Contract No. 18150/04/NL/MV	2004	15 k€	Scientific co-responsible
P3.	Research project	European Commission	FLEXIFUNBAR (Multifunctional barrier for flexible structure)	NMP2-CT-2004, grant n° 505864	2004-2008	343 k€	-Scientific Committee Member -Task leader (Conductive polymers, Electrostatic and electromagnetic

							aspects)
P2.	Industrial contract	BMW (DE)	Sensing and actuating fabrics for automotive interiors	BMW purchase order 1 610 463	2003	53 k€	Internal co-responsible of activity
P1.	Research project	European Commission	BIOLOCH (Bio-mimetic structures for locomotion in the Human body)	IST-2001-34181	2001-2005	300 k€	Internal co-responsible of activity

Speaker at Conferences, Seminars, Courses and Schools

2023

152. UPON INVITATION:
“Wearable pneumatic tactile displays of softness for virtual reality”, *IEEE World Haptics 2023*, Delft, The Netherlands, 10 July 2023.
151. UPON INVITATION:
“Electrically tuneable focusing or transmission of light through elastomeric thin structures”, *EUROPL 2023 - International Congress and Expo on Optics, Photonics and Lasers*, Online, 30 June 2023.
150. UPON INVITATION:
“Electroactive polymers as ‘artificial muscle’ materials: new opportunities for biomaterials and tissue engineering”, *BIOMATMEET 2023 - Second International Meet on Biomaterials and Tissue Engineering*, Online, 17 April 2023.
149. UPON INVITATION:
“Biomedical and bioinspired mechatronics using electroactive smart elastomers”, *CMPFORUM 2023 - International Forum on Condensed Matter Physics*, Online, 6 February 2023.

2022

148. UPON INVITATION:
“Monitoring flexions and torsions of the trunk: dielectric elastomer stretch sensors vs inertial sensors”, *Sensors-eCon2022: Sensors Research eConference*, Online, 22 November 2022.
147. UPON INVITATION:
Keynote Lecture, “Electroactive polymer-based smart scaffolds for tissue engineering and regenerative medicine”, *TERMC 2022 - International Conference on Tissue Engineering and Regenerative Medicine – 2nd edition*, Online, 16 September 2022.
146. UPON INVITATION:
Keynote Lecture, “Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers”, *V-PSCM 2022 - Polymer Science & Composite Materials, Virtual event*, 17 June 2022.
145. UPON INVITATION (declined):
Minisymposium on Mechanics of Soft, Multifunctional Materials: Experiment, Modeling And Simulation, 8th ECCOMAS Congress 2022 - European Community of Computational Methods in Applied Sciences, Oslo, Norway, 5-9 June 2022.
144. UPON INVITATION:
“Simulation of material softness: wearable non-vibratory tactile displays for online shopping”, *PI Apparel Europe 2022*, Online, 26 April 2022.

2021

143. UPON INVITATION:
“Soft optics for robotics”, *Italian Institute for Robotics and Intelligent Machines Workshop: Next generation components for robotics*, Online, 9 October 2021.
142. UPON INVITATION:
“Multifunctional electrically tunable lenses made of dielectric elastomer actuators”, *Werner Siemens-Stiftung Scientific Hornbach Workshop – Smart Implants*, Online, 8 October 2021.

141. UPON INVITATION:
Keynote Lecture, “Electroactive polymers as ‘artificial muscle’ materials: New opportunities for biomaterials and tissue engineering”, *TERMC 2021 - International Conference on Tissue Engineering and Regenerative Medicine*, Online, 20 September 2021.
140. UPON INVITATION:
 “Monitoring flexions and torsions of the trunk: dielectric elastomer stretch sensors vs inertial sensors”, *EuroEAP 2021 – International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles*, Online, 1 June 2021.
- 2020**
139. UPON INVITATION (declined):
Keynote Lecture, *NICE-2020 - International Conference on Bioinspired & Biobased Materials and Chemistry*, Nice, France, 12-14 October 2020.
138. UPON INVITATION (declined):
Plastics & Rubber Technology, Stockholm, Sweden, 09 – 11 June 2020
137. UPON INVITATION (declined):
LSP 2020 - World Conference On Laser, Optic Science & Photonics, Valencia, Spain, 14-16 April 2020.
136. UPON INVITATION (declined):
OWT 2020 - International Conference on Optical and Wireless Technologies, Malaviya National Institute of Technology Jaipur, Rajasthan, India, 11-12 April 2020.
135. UPON INVITATION (declined):
WCSM 2020 - Sixth World Congress of Smart Materials, Barcelona, Spain, 11-13 March 2020.
134. UPON INVITATION (declined):
ASM 2020 - International Conference on Applications of Smart Materials, Annamalai Nagar, India, 5-7 February 2020.
- 2019**
133. UPON INVITATION (declined):
American Advanced Materials Congress 2019, Miami, USA, 8–13 December 2019.
132. UPON INVITATION:
 “Electrically tuneable focussing or transmission of light through elastomeric thin structures”, *Third Huawei Optical Innovations Summit*, Munich, Germany, 21 October 2019.
131. “Wearable kinematic monitoring system based on piezocapacitive sensors”, *pHealth 2019 - 16th International Conference on Wearable, Micro & Nano technologies for Personalized Health*, Genova, Italy, 10-12 June 2019.
- 2018**
130. UPON INVITATION:
Plenary Talk, “Wearable elastomeric devices for detecting finger movements and returning tactile feedback”, *XIX Congress of the Italian Society of Clinical Movement Analysis (SIAMOC 2018)*, Florence, Italy, 4 October 2018.
129. “Soft wearable non-vibratory tactile displays”, *RoboSoft 2018 - the 2018 IEEE International Conference on Soft Robotics*, Livorno, Italy, 25 April 2018.
128. UPON INVITATION (declined):
Plenary talk, *Smart Materials Meet 2018*, Dubai, UAE, 19-20 April 2018.
127. UPON INVITATION (declined):
4th Annual World Congress of Smart Materials – WCSM 2018, Osaka, Japan, 6-8 March 2018.
- 2017**

126. UPON INVITATION (declined):
Responsive Matter: from 3D printing to 4D matter, Centre Pompidou, Paris, France, 1 June 2017.

125. UPON INVITATION (declined):
3rd Annual World Congress of Smart Materials-2017, Bangkok, Thailand, 16-18 March 2017.

2016

124. UPON INVITATION (declined):
2nd World Congress on Materials Science, Polymer Engineering and Microtechnologies (Materials Science-2016), Abu Dhabi-Al Bustan, UAE, 28-30 November 2016.

123. UPON INVITATION (declined):
Collaborative Conference on Robotics (CCR 2016), Phuket, Thailand, 3-7 November 2016.

122. UPON INVITATION (declined):
Day of Photonics, SPIE Student SPIE Chapter Meeting, University of Zilina, Slovakia, 21 October 2016.

121. UPON INVITATION (declined):
6th International Conference and Exhibition on Materials Science and Engineering, Atlanta, USA, 1-3 September 2016.

120. UPON INVITATION:
Keynote Lecture, “Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers”, *Workshop on Active Materials (Electro- or Magneto-Responsive Solids)*, ESPCI- École Supérieure de Physique et de Chimie Industrielles, Paris, France, 12 April 2016.

119. UPON INVITATION:
“Enabling haptic devices with electroactive smart elastomers”, *IEEE Haptics Symposium, workshop on 'Smart Material Actuators for Haptics Application'*, Philadelphia, USA, 8 April 2016.

118. UPON INVITATION:
“Electroactive smart elastomers for orthotics and prosthetics: opportunities and challenges”, *Seminar, Center for Physical Therapy and Biomechanics, University of Delaware*, Newark, USA, 7 April 2016.

117. UPON INVITATION:
“Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers”, *Seminar, Tandon School of Engineering, New York University*, New York, USA, 6 April 2016.

116. UPON INVITATION (declined):
EMN Meeting on Biomaterials 2016, Phuket, Thailand, 4-7 April 2016.

115. UPON INVITATION (declined):
SPIE Smart Structures and Materials 2016: Electroactive Polymer Actuators and Devices, Las Vegas, Nevada, USA, 20-24 March 2016.

114. UPON INVITATION (declined):
BIT's 9th Annual World Congress of Industrial Biotechnology (ibio-2016), Seoul, South Korea, 16-18 March 2016.

113. UPON INVITATION (declined):
2nd Annual World Congress of Smart Materials (WCSM-2016), Singapore, 4-6 March 2016.

2015

112. UPON INVITATION (declined):
EMN (Energy, Materials and Nanotechnology) Meeting 2015, Bangkok, Thailand, 10-13 November 2015.
111. UPON INVITATION:
“Muscle-like soft actuation based on electro-responsive smart materials”, *The 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2015)*, Workshop “From Plants and Animals to Robots: Movements, Sensing, and Control. Two worlds in comparison”, Hamburg, Germany, 28 September 2015.
110. UPON INVITATION:
“Dielectric elastomer actuators: devices and examples of applications”, *The 2015 MICTACT Training School on Dielectric Elastomer Transducers*, EPFL, Neuchâtel, Switzerland, 8-10 September 2015.
109. UPON INVITATION (declined):
8th International Conference on Bio-Mimetics, Artificial Muscle and Nano-Bio-systems (BAMN 2015), Downtown Vancouver, Canada, 23-26 August 2015.
108. UPON INVITATION (declined):
Medical Physics-2015 - International Conference on Medical Physics, Birmingham, UK, 3-5 August 2015.
107. UPON INVITATION (declined):
Course on "Design with Smart Materials", Indian Institute of Information Technology, Design and Manufacturing, Chennai, India, July 2015.
106. UPON INVITATION:
“Electrically tuneable lenses made of electromechanically active polymers”, *X International Workshop on Adaptive Optics for Industry and Medicine – AOIM 2015*, Padova, Italy, 18 June 2015.
105. UPON INVITATION:
“Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers”, *Seminar, Italian Institute of Technology*, Genova, Italy, 17 June 2015.
104. UPON INVITATION (declined):
International conference on Frontiers in Materials Processing, Applications, Research and Technology (FiMPART 2015), Hyderabad, India, 12-15 June 2015.
103. UPON INVITATION (declined):
4th Annual World Congress of Advanced Materials-2015 (WCAM-2015), Chongqing, China, 27-29 May 2015.
102. UPON INVITATION:
“Electroactive polymer devices for biomedical and bioinspired mechatronic systems”, *Course for the Programme of the PhD degree in Bioengineering at the University of Pisa*, Pisa, Italy, 10, 17 and 24 April 2015.
101. UPON INVITATION (declined):
Symposium on electro active polymers, in the occasion of the official opening of Fraunhofer IPA - AIST Japan project centre, Stuttgart, Germany, 21 April 2015.
100. UPON INVITATION (declined):
World Congress of Smart Materials-2015 (WCSM-2015), Busan, Republic of Korea, 23-25 March 2015.
99. UPON INVITATION (declined):
SPIE Smart Structures and Materials 2015: Electroactive Polymer Actuators and Devices,

San Diego, USA, 8-12 March 2015.

98. UPON INVITATION:

“Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers”, *Seminar, Politecnico di Torino*, Torino, Italy, 9 February 2015.

2014

97. “Limb compression band made of dielectric elastomer actuators ”, *EAP Workshop 2014: Electromechanically Active Polymer Transducers and Artificial Muscles*, London, UK, 25-26 November 2014.

96. “Finger-tip tactile display based on dielectric elastomer actuators”, *EAP Workshop 2014: Electromechanically Active Polymer Transducers and Artificial Muscles*, London, UK, 25-26 November 2014.

95. UPON INVITATION:

Keynote Lecture, “Electro-responsive elastomeric actuators for biomedical and bioinspired mechatronic systems”, *First International Conference on Polymer Science and Engineering*, Beijing, China, 12 November 2014.

94. UPON INVITATION (declined):

4th Annual World Congress of Nanoscience and Nanotechnology-2014 (Nano-SandT 2014), Qingdao, China, 29-31 October 2014.

93. UPON INVITATION (declined):

Energy, Materials and Nanotechnology Open Access Week Meeting (EMN 2014), Chengdu, China, 22-25 September 2014.

92. UPON INVITATION (declined):

International Rubber Conference (IRC 2014), Beijing, China, 16-18 September 2014.

91. UPON INVITATION (declined):

Keynote Lecture, *International Union of Materials Research Societies - The IUMRS International Conference in Asia 2014 (IUMRS-ICA 2014)*, Symposium B-7 “Soft Actuators and Related Energy-Conversion Materials”, Fukuoka, Japan, 24-30 August 2014.

90. UPON INVITATION (declined):

Third International Conference on Gastroenterology and Urology (Gastroenterology-2014), San Francisco, USA, 28-30 July 2014.

89. UPON INVITATION (declined):

1st International Symposium on Energy Challenges and Mechanics, Aberdeen, UK, 8-10 July 2014.

88. UPON INVITATION (declined):

Bio-Inspired Materials session of the *3rd Annual World Congress of Advanced Materials-2014 (WCAM-2014)*, Chongqing, China, 6-9 June 2014.

87. UPON INVITATION (declined):

International conference on *3D Bioprinting for Wearables and Implantables*, Dublin, Ireland, 14-15 May 2014.

86. UPON INVITATION (declined):

Artificial Muscles, Biomedical Devices, Energy Harvesting and Biomimetic Robots session of the *7th World Congress of Industrial Biotechnology (IBIO-2014)*, Dalian, China, 25-28 April 2014.

85. UPON INVITATION:

“Standardization of dielectric elastomer transducers”, *ESNAM Training School on Dielectric Elastomer Transducers*, Darmstadt, Germany, 25-27 March 2014.

84. UPON INVITATION (declined):
Biinspiration, Biomimetics, and Bioreplication IV, SPIE Smart Structures/NDE Symposium, San Diego, USA, 9-12 March 2014.
- 2013**
83. UPON INVITATION (declined):
12th International Conference on Frontiers of Polymers and Advanced Materials (12th ICFPAM), Auckland, New Zealand, 8-12 December 2013.
82. UPON INVITATION (declined):
EMN (Energy Materials Nanotechnology) 2013 Fall Meeting, Orlando, Florida, USA, 7-10 December 2013.
81. UPON INVITATION (declined):
Introductory Lecture, 5th NANOCON International Conference (NANOCON 2013), Session C - Bionanotechnology, Nanomaterials In Medicine, Brno, Czech Republic, 16-18 October 2013.
80. UPON INVITATION (declined):
7th world congress on Biomimetics, Artificial Muscles and Nano-Bio (BAMN2013), Jeju Island, South Korea, 26-30 August 2013.
79. UPON INVITATION (declined):
Keynote Lecture, EUROFILLERS 2013 conference, Bratislava, Slovakia, 25-29 August 2013.
78. UPON INVITATION (declined):
4th International Conference on Smart Materials and Nanotechnology in Engineering (SMN 2013), special session "Electro-active Polymers", Gold Coast, Queensland, Australia, 10-12 July 2013.
77. "Predictive stress-stretch models of dielectric elastomers up to the characteristic flex", *Proc. of EuroEAP 2013 – Third International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles, Dübendorf (Zürich), Switzerland, 25-26 June 2013.*
76. UPON INVITATION (declined):
4th Annual World Congress of NanoMedicine (NanoMedicine-2013), Suzhou International Expo Center, China, 5-7 June 2013.
75. UPON INVITATION (declined):
2nd Annual World Congress of Advanced Materials (WCAM-2013), Suzhou International Expo Center, China, 5-7 June 2013.
74. UPON INVITATION (declined):
NeuroTalk-2013, Track 2-9: Neurorehabilitation Engineering: Brain-Machine Interface, Xi'an, China, 23-25 May 2013.
73. UPON INVITATION:
Keynote Lecture, "Enabling new biomedical and bioinspired mechatronic systems with electroactive elastomeric actuators", Medical Technology Expo 2013, Coventry, UK, 10 April 2013.
72. UPON INVITATION (declined):
The 2013 Materials Research Society (MRS) Spring Meeting, Special session on 'Materials and processes for electronic skins', San Francisco, USA, 1-5 April 2013.
71. UPON INVITATION:
"Enabling new biomedical and bioinspired mechatronic systems with electroactive polymer actuators", Seminar, University of Oxford, Oxford, UK, 14 January 2013.
- 2012**

70. UPON INVITATION:
“Dielectric elastomer actuators: devices and examples of applications”, *ESNAM Training School on Dielectric EAPs*, Neuchatel, Switzerland, 16-18 October 2012.
69. UPON INVITATION (declined):
Keynote Lecture, “Bioinspired tunable lenses with electroactive polymer artificial muscles: a new sight on artificial vision systems”, *Workshop on Smart Materials for Bio-inspired Robots, IROS 2012 - IEEE/RSJ International Conference on Intelligent Robots and Systems*, Vilamoura, Algarve, Portugal, 7-12 October 2012.
68. UPON INVITATION:
“Hydrostatically-coupled elastomeric actuators as artificial muscles for soft-bodied robots inspired to the muscular hydrostat”, *Biological Muscular Hydrostats Workshop, Living Machines 2012 - the First International Conference on Biomimetics and Biohybrid Systems*, Barcelona, Spain, 9-12 July 2012.
67. “Bioinspired tunable lens driven by electroactive polymer artificial muscles”, *Living Machines 2012 - the First International Conference on Biomimetics and Biohybrid Systems*, Barcelona, Spain, 9 July 2012.
66. UPON SELECTION:
“Assistive technologies 2020: the role of smart materials”, *Horizon 2020 Lectures, GNB 2012 - Terzo Congresso del Gruppo Nazionale di Bioingegneria*, Rome, 26-29 June 2012.
65. UPON INVITATION:
Keynote Lecture, “Smart materials: a matter of intelligence”, *EMBODYi ("Embodied Intelligence" initiative, ICT-FET programme) PhD Summer School on 'Smart materials, sensors, and actuators within embodied intelligence systems'*, Rome, 25-29 June 2012.
64. UPON INVITATION:
“Electroactive elastomeric actuators for biomedical and bioinspired systems”, *BioRob 2012: The 4th IEEE International Conference on Biomedical Robotics and Biomechatronics – Smart Materials and Actuators for Soft Robotics session*, Rome, 25 June 2012.
63. UPON INVITATION:
“New dielectric elastomer actuators for biomedical and bioinspired systems”, *CIMTEC 2012: 4th International Conference on Smart Materials, Structures and Systems – Symposium C: Electroactive Polymers: Advances in Materials and Devices*, Montecatini Terme, 13 June 2012.
62. UPON INVITATION:
“Smart materials: a matter of intelligence”, ‘Brown Bag’ lecture, *Artificial Intelligence Laboratory, Department of Informatics, University of Zurich*, 5 June 2012.
61. “Finger-tip tactile display based on hydrostatically coupled dielectric elastomer actuators for virtual reality systems”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
60. “Bioinspired tunable lens made of dielectric elastomer artificial muscles”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
59. UPON INVITATION (declined):
“Robotic magnetic capsule endoscopy for minimally invasive diagnosis of gastrointestinal diseases”, *BIT's 5th Annual World Congress of Cancer 2012*, Beijing, China, 18-20 May 2012.
58. UPON INVITATION (declined):
“Magnetically controllable gastrointestinal steering of video capsules”, *2012 International*

Medical Imaging Forum, Hangzhou, China, 13-15 April 2012.

57. UPON INVITATION:
 “Smart material based biomedical and bioinspired mechatronic systems”, *Seminar, Queen Mary University, London, UK, 21 February 2012.*

2011

56. UPON INVITATION:
 "Dielectric elastomer transducers: a great potential beyond high potentials”, *Seminar, EMPA Academy, Duebendorf, Switzerland, 9 November 2011.*
55. UPON INVITATION:
 “Bioinspired tunable lens made of elastomeric artificial muscles”, *6th World Congress on Biomimetics, Artificial Muscles and Nano-Bio, Cergy, France, 26 October 2011.*
54. UPON INVITATION (declined):
BIT's 1st Annual World Congress of Nano-SandT, Dalian, China, 23-26 October 2011.
53. UPON INVITATION:
 "Braille displays based on dielectric elastomer actuators”, *Seminar, Bayer MaterialScience, Leverkusen, Germany, 29 September 2011.*
52. UPON INVITATION:
 “Electromechanically active polymer artificial muscles for future soft robotics and biomimetics”, *Barcelona Cognition, Brain and Technology – BCBT, Summer School 2011 - European coordination action “Convergent Science Network of Biomimetic and Biohybrid Systems, Barcelona, Spain, 9 September 2011.*
51. UPON INVITATION (declined):
IONS-10, International Optical Society Network of Students, Southampton, UK, 10-12 August 2011.
50. UPON INVITATION (declined):
ICAR 2011 - The 15th international conference on advanced robotics - Workshop on Soft robotics, Tallin, Estonia, 20-23 June 2011.
49. “Towards variable-stiffness dynamic hand splints based on dielectric elastomer transducers”, *EuroEAP 2011 - First International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles, Pisa, Italy, 9 June 2011.*
48. “Refreshable Braille cells based on dielectric elastomer actuators”, *EuroEAP 2011 - First International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles, Pisa, Italy, 8 June 2011.*
47. UPON INVITATION (declined):
 OPTO meeting for Young Researchers, Torun, Poland, 11-14 May 2011.
46. UPON INVITATION:
 "Dielectric Elastomer Transducers: a Great Potential Beyond High Potentials”, *Seminar, University of Potsdam, Germany, 29 April 2011.*
45. “Dielectric elastomer actuators with granular coupling”, *SPIE Smart Structures and Materials 2011: Electroactive Polymer Actuators and Devices, San Diego, USA, 7-10 March 2011.*
44. “Opportunities of hydrostatically coupled dielectric elastomer actuators for haptic interfaces”, *SPIE Smart Structures and Materials 2011: Electroactive Polymer Actuators and Devices, San Diego, USA, 7-10 March 2011.*

2010

43. UPON INVITATION:
 “Dielectric Elastomer Transducers: a Great Potential Beyond High Potentials”, *Seminar, Harvard University, School of Engineering and Applied Sciences, Cambridge, USA, 30*

- November 2010.
42. UPON INVITATION:
Opening Speech, “Hydrostatically coupled dielectric elastomer actuators: new opportunities for haptics”, Symposium on “Polymer-Based Smart Materials - Process, Properties, and Application” - *Material Research Society (MRS) Fall Meeting 2010*, Boston, USA, 29 November 2010.
41. UPON INVITATION (declined):
The fourth International Conference on Electroactive Polymers: Materials and Devices (ICEP-2010), Delhi, India, 21-26 November 2010.
40. UPON INVITATION (declined):
Symposium on “Bioinspired Materials Engineering” - Materials Science and Technology 2010, Houston, Texas, 17-21 October 2010.
39. UPON INVITATION:
“Hydrostatically coupled dielectric elastomer actuators: new opportunities for hand rehabilitation”, *International Workshop on “Actuation and Sensing in Robotics”*, Saarbrücken, Germany, 6 October 2010.
38. UPON INVITATION:
Opening Speech, “Hydrostatically coupled dielectric elastomer actuators: new opportunities for haptics”, Symposium on *Matériaux Polymères pour la Conversion et/ou le Stockage de l'Énergie*, University of Cergy-Pontoise, Cergy, France, 10 September 2010.
37. “Natural and artificial helical structures”, *Design and Nature V*, Pisa, Italy, 28-30 June 2010.
36. UPON INVITATION:
“Electroactive polymer artificial muscles: an overview”, *Design and Nature V*, Pisa, Italy, 29 June 2010.
35. UPON INVITATION:
“Electroactive Polymer Actuators: From Lab to Market”, *Actuator 2010 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 14 June 2010.
34. “Hydrostatically coupled dielectric elastomer actuators for tactile displays and cutaneous stimulators”, *SPIE Smart Structures and Materials 2010: Electroactive Polymer Actuators and Devices*, San Diego, USA, 8-11 March 2010.
33. UPON INVITATION (declined):
“*Brown Bag*” lecture, Artificial Intelligence Laboratory, Department of Informatics, University of Zurich, 18 February 2010.
32. UPON INVITATION:
“Design and development of new devices and applications”, *PhD winter school on Dielectric Elastomer Actuator Technology*, Ascona, Switzerland, 14 January 2010.
- 2009**
31. UPON INVITATION (declined):
4th Conference on Artificial Muscles, and 5th World Congress on Biomimetics, Artificial Muscles and Nano-Bio, Osaka, Japan, 25-27 November 2009.
30. UPON INVITATION (declined):
Seminar, Empa Academy, Dübendorf, Switzerland, 15 October 2009.
29. “Electromechanically active polymers: new opportunities for biomaterials and tissue engineering”, *Medical Physics and Biomedical Engineering - World Congress 2009*, Monaco, Germany, 7-12 September 2009.
28. “Robotic magnetic manoeuvring of endoscopic video capsules: phantom tests”, *Medical Physics and Biomedical Engineering - World Congress 2009*, Monaco, Germany, 7-12

September 2009.

27. “A new concept for dielectric elastomer actuators: hydrostatic coupling”, *SPIE Europe’s Microtechnologies for the New Millennium - Smart Sensors, Actuators, and MEMS IV*, Dresden, Germany, 4-6 May 2009.
26. “Dielectric elastomer actuators with hydrostatic coupling”, *SPIE Smart Structures and Materials 2009: Electroactive Polymer Actuators and Devices*, San Diego, USA, 9-12 March 2009.

2008

25. “Silicone made contractile dielectric elastomer actuators inside 3-Tesla MRI environment”, *IEEE/RSJ 2008 International Conference on Intelligent Robots and Systems (IROS 2008)*, Nice, France, 22-26 September 2008.
24. UPON INVITATION (declined):
Second International Conference on Polymer Blends, Composites, IPNs, Membranes, Poly Electrolytes and Gels: Macro to Nano Scales (ICBC – 2008), Kottayam, Kerala, India, 22-24 September 2008.
23. UPON INVITATION:
“Dispositivi polimerici e convenzionali integrabili in sistemi indossabili”, *XXVII Scuola Annuale del Gruppo Nazionale di Bioingegneria (GNB) - Dispositivi indossabili per la salute e la protezione dell'uomo*, Bressanone, 16 September 2008.
22. "Buckling actuator and sensor based on dielectric elastomers", *Actuator 2008 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 9-11 June 2008.
21. “Elastomeric contractile actuators for hand rehabilitation splints”, *SPIE Smart Structures and Materials 2008: Electroactive Polymer Actuators and Devices*, San Diego, USA, 10-13 March 2008.
20. “Enhancement of the electromechanical transduction properties of a silicone elastomer by blending with a conjugated polymer”, *SPIE Smart Structures and Materials 2008: Electroactive Polymer Actuators and Devices*, San Diego, USA, 10-13 March 2008.

2007

19. UPON INVITATION:
“Contractile folded dielectric elastomer actuators”, *SPIE Smart Structures and Materials 2007: Electroactive Polymer Actuators and Devices*, San Diego, USA, 19-22 March 2007.

2006

18. “Dielectric elastomer actuators driven by human electrophysiological signals”, *Actuator 2006 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 14-16 June 2006.
17. “A new contractile linear actuator made of dielectric elastomers with folded structure”, *Actuator 2006*, Bremen, Germany, 14-16 June 2006.
16. “Bubble-like dielectric elastomer actuator with integrated sensor: device and applications”, *Actuator 2006 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 14-16 June 2006.
15. “Electrophysiological activation of polymer actuators”, *Third World Congress on Biomimetics, Artificial Muscles and Nano-Bio*, Lausanne, Switzerland, 25-27 May 2006.
14. UPON INVITATION:
“Wearable mechanosensing for posture recognition and emerging technologies in electroactive polymer actuation”, *Smart Fabrics 2006*, Miami Beach, USA, 6-8 March 2006.
13. “Activation of dielectric elastomer actuators by means of human electrophysiological signals”, *SPIE Smart Structures and Materials 2006: Electroactive Polymer Actuators and*

- Devices*, San Diego, USA, 27 February – 2 March 2006.
12. “Buckling dielectric elastomer actuators and their use as motors for the eyeballs of an android face”, *SPIE Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices*, San Diego, USA, 27 February – 2 March 2006.
 11. “Contractile dielectric elastomer actuator with folded shape”, *SPIE Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices*, San Diego, USA, 27 February – 2 March 2006.
 10. UPON INVITATION:
“Biomimetic dielectric elastomer actuators”, *BioRob 2006 - The First IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechanics*, Pisa, Italy, 20-22 February 2006.
- 2005**
9. UPON INVITATION:
“Materiali polimerici elettroattivi”, *Seminar per il Dottorato di Ricerca in Ingegneria Chimica e dei Materiali, Università di Pisa*, 24 June 2005.
 8. “Electroactive polymers: new materials for spacecraft structures”, *European Conference on Spacecraft Structures Materials and Mechanical Testing*, Noordwijk, The Netherland, 10-12 May 2005.
 7. UPON INVITATION:
“A new contractile linear actuator made of dielectric elastomers”, *SPIE Smart Structures and Materials 2005: Electroactive Polymer Actuators and Devices*, San Diego, USA, 7-10 March 2005.
 6. “Eyeball pseudo-muscular actuators for an android face”, *SPIE Smart Structures and Materials 2005: Electroactive Polymer Actuators and Devices*, San Diego, USA, 8 March 2005.
- 2004**
5. “Theoretical description and fabrication of a new dielectric elastomer actuator showing linear contractions”, *Actuator 2004 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 14-16 June 2004.
 4. “Physically functionalised materials for personal monitoring and support”, *European Workshop On The Applications Of Nanotechnology In Environment And Health*, Ispra (Varese), 17-19 May 2004.
- 2002**
3. UPON INVITATION:
“Helical dielectric elastomer actuators”, *Seminar, Stanford Research Institute*, Menlo Park, California, USA, 14 December 2002.
 2. “Performances of dielectric elastomer planar actuators”, *Actuator 2002 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 10-12 June 2002.
 1. “Characterization of dielectric elastomer planar actuators”, *7th National Conference on Sensors and Microsystems*, Bologna, 4-6 February 2002.

Publications

Journal papers**2022**

- J79. Mazzolai, B., Mondini, A., Del Dottore, E., Margheri, L., Carpi, F., Suzumori, K., ... & Lendlein, A. (2022). Roadmap on soft robotics: multifunctionality, adaptability and growth without borders. *Multifunctional Materials*, 5(3), 032001. DOI: 10.1088/2399-7532/ac4c95.

2021

- J78. Frediani, G., Vannetti, F., Bocchi, L., Zonfrillo, G., & Carpi, F. (2021). Monitoring flexions and torsions of the trunk via gyroscope-calibrated capacitive elastomeric wearable sensors. *Sensors*, 21(20), 6706. DOI: 10.3390/s21206706.
- J77. Frediani, G., Bocchi, L., Vannetti, F., Zonfrillo, G., & Carpi, F. (2021). Wearable detection of trunk flexions: Capacitive elastomeric sensors compared to inertial sensors. *Sensors*, 21(16), 5453. DOI: 10.3390/s21165453.
- J76. Chen, L., Ghilardi, M., Busfield, J. J., & Carpi, F. (2021). Electrically tunable lenses: a review. *Frontiers in Robotics and AI*, 8, 678046. DOI: 10.3389/frobt.2021.678046.
- J75. Colombini, G., Duradoni, M., Carpi, F., Vagnoli, L., & Guazzini, A. (2021). LEAP motion technology and psychology: A mini-review on hand movements sensing for neurodevelopmental and neurocognitive disorders. *International Journal of Environmental Research and Public Health*, 18(8), 4006. DOI: 10.3390/ijerph18084006.
- J74. Frediani, G., Boys, H., Ghilardi, M., Poslad, S., Busfield, J. J., & Carpi, F. (2021). A soft touch: wearable tactile display of softness made of electroactive elastomers. *Advanced Materials Technologies*, 6(6), 2100016. DOI: 10.1002/admt.202100016.

2020

- J73. Frediani, G., & Carpi, F. (2020). Tactile display of softness on fingertip. *Scientific Reports*, 10(1), 20491. DOI: 10.1038/s41598-020-77591-0.
- J72. Chen, L., Busfield, J. J., & Carpi, F. (2020). Electrically tunable directional light scattering from soft thin membranes. *Optics Express*, 28(14), 20669-20685. DOI: 10.1364/OE.392015.
- J71. Costa, J., Ghilardi, M., Mamone, V., Ferrari, V., Busfield, J. J., Ahluwalia, A., & Carpi, F. (2020). Bioreactor with electrically deformable curved membranes for mechanical stimulation of cell cultures. *Frontiers in Bioengineering and Biotechnology*, 8, 22. DOI: 10.3389/fbioe.2020.00022.

2019

- J70. Chen, L., Ghilardi, M., Busfield, J. J., & Carpi, F. (2019). Electrically tuning soft membranes to both a higher and a lower transparency. *Scientific Reports*, 9(1), 20125. DOI: 10.1038/s41598-019-56505-9.
- J69. Ghilardi, M., Boys, H., Török, P., Busfield, J. J., & Carpi, F. (2019). Smart lenses with electrically tuneable astigmatism. *Scientific Reports*, 9(1), 16127. DOI: 10.1038/s41598-019-52168-8.

2018

- J68. Calabrese, L., Frediani, G., Gei, M., De Rossi, D., & Carpi, F. (2018). Active compression bandage made of electroactive elastomers. *IEEE/ASME Transactions on Mechatronics*, 23(5), 2328-2337. DOI: 10.1109/TMECH.2018.2860789.
- J67. Frediani, G., Busfield, J., & Carpi, F. (2018). Enabling portable multiple-line refreshable Braille displays with electroactive elastomers. *Medical Engineering & Physics*, 60, 86-93. DOI: 10.1016/j.medengphy.2018.07.012.

2017

- J66. Cei, D., Costa, J., Gori, G., Frediani, G., Domenici, C., Carpi, F., & Ahluwalia, A. (2017). A

bioreactor with an electro-responsive elastomeric membrane for mimicking intestinal peristalsis. *Bioinspiration & Biomimetics*, 12(1), 016001. DOI: 10.1088/1748-3190/12/1/016001.

2016

- J65. Pieroni, M., Lagomarsini, C., De Rossi, D., & Carpi, F. (2016). Electrically tunable soft solid lens inspired by reptile and bird accommodation. *Bioinspiration & Biomimetics*, 11(6), 065003. DOI: 10.1088/1748-3190/11/6/065003.

2015

- J64. Chen, B., Kollosche, M., Stewart, M., Busfield, J., & Carpi, F. (2015). Electrical breakdown of an acrylic dielectric elastomer: effects of hemispherical probing electrode's size and force. *International Journal of Smart and Nano Materials*, 6(4), 290-303. DOI: 10.1080/19475411.2015.1130974.
- J63. Carpi, F., Anderson, I., Bauer, S., Frediani, G., Gallone, G., Gei, M., ... & Shea, H. (2015). Standards for dielectric elastomer transducers. *Smart Materials and Structures*, 24(10), 105025. DOI: 10.1088/0964-1726/24/10/105025.
- J62. Maiolino, P., Galantini, F., Mastrogiovanni, F., Gallone, G., Cannata, G., & Carpi, F. (2015). Soft dielectrics for capacitive sensing in robot skins: Performance of different elastomer types. *Sensors and Actuators A: Physical*, 226, 37-47. DOI: 10.1016/j.sna.2015.02.010.
- J61. Maffli, L., Rosset, S., Ghilardi, M., Carpi, F., & Shea, H. (2015). Ultrafast all-polymer electrically tunable silicone lenses. *Advanced Functional Materials*, 25(11), 1656-1665. DOI: 10.1002/adfm.201403942.

2014

- J60. Frediani, G., Mazzei, D., De Rossi, D. E., & Carpi, F. (2014). Wearable wireless tactile display for virtual interactions with soft bodies. *Frontiers in Bioengineering and Biotechnology*, 2, 31. DOI: 10.3389/fbioe.2014.00031.
- J59. Carpi, F., Frediani, G., Gerboni, C., Gemignani, J., & De Rossi, D. (2014). Enabling variable-stiffness hand rehabilitation orthoses with dielectric elastomer transducers. *Medical Engineering & Physics*, 36(2), 205-211. DOI: 10.1016/j.medengphy.2013.10.015.
- J58. Hanley, C. A., Gun'ko, Y. K., Frediani, G., & Carpi, F. (2014). Stretchable optical device with electrically tunable absorbance and fluorescence. *Smart Materials and Structures*, 23(1), 015009. DOI: 10.1088/0964-1726/23/1/015009.

2013

- J57. Carpi, F., & Gei, M. (2013). Predictive stress–stretch models of elastomers up to the characteristic flex. *Smart Materials and Structures*, 22(10), 104011. DOI: 10.1088/0964-1726/22/10/104011.
- J56. Galantini, F., Carpi, F., & Gallone, G. (2013). Effects of plasticization of a soft silicone for dielectric elastomer actuation. *Smart Materials and Structures*, 22(10), 104020. DOI: 10.1088/0964-1726/22/10/104020.
- J55. Carpi, F., Graz, I., Jager, E., Skov, A. L., & Vidal, F. (2013). Electromechanically active polymer transducers: research in Europe. *Smart Materials and Structures*, 22(10), 100301. DOI: 10.1088/0964-1726/22/10/100301.
- J54. Carpi, F., & Shaheed, H. (2013). Grand challenges in magnetic capsule endoscopy. *Expert Review of Medical Devices*, 10(4), 433-436. DOI: 10.1586/17434440.2013.811832.

2012

- J53. Carpi, F., Frediani, G., & De Rossi, D. (2012). Contractile hydrostatically coupled dielectric elastomer actuators. *IEEE/ASME Transactions On Mechatronics*, 17(5), 987-994. DOI:

10.1109/TMECH.2011.2141145.

- J52. Vertechy, R., Frisoli, A., Bergamasco, M., Carpi, F., Frediani, G., & De Rossi, D. (2012). Modeling and experimental validation of buckling dielectric elastomer actuators. *Smart Materials and Structures*, 21(9), 094005. DOI: 10.1088/0964-1726/21/9/094005.
- J51. Galantini, F., Gallone, G., & Carpi, F. (2012). Effects of Corona treatment on electrical and mechanical properties of a porous dielectric elastomer. *IEEE Transactions on Dielectrics and Electrical Insulation*, 19(4), 1203-1207. DOI: 10.1109/TDEI.2012.6259991.
- J50. Wang, H., Cai, S., Carpi, F., & Suo, Z. (2012). Computational model of hydrostatically coupled dielectric elastomer actuators. *Journal of Applied Mechanics*, 79(3). DOI: 10.1115/1.4005885.
- J49. Carpi, F., & De Rossi, D. (2012). Small-strain modeling of helical dielectric elastomer actuators. *IEEE/ASME Transactions on Mechatronics*, 17(2), 318-325. DOI: 10.1109/TMECH.2010.2100403.

2011

- J48. Carpi, F., Kornbluh, R., Sommer-Larsen, P., & Alici, G. (2011). Electroactive polymer actuators as artificial muscles: are they ready for bioinspired applications? *Bioinspiration & Biomimetics*, 6(4), 045006. DOI: 10.1088/1748-3182/6/4/045006.
- J47. Carpi, F., Erb, R., & Jeronimidis, G. (2011). Special section on biomimetics of movement. *Bioinspiration & Biomimetics*, 6(4), 040201.
- J46. Carpi, F., Frediani, G., Turco, S., & De Rossi, D. (2011). Bioinspired tunable lens with muscle-like electroactive elastomers. *Advanced Functional Materials*, 21(21), 4152-4158. DOI: 10.1002/adfm.201101253.
- J45. Runyan, N. H., & Carpi, F. (2011). Seeking the 'holy Braille' display: might electromechanically active polymers be the solution? *Expert Review Of Medical Devices*, 8(5), 529-532. DOI: 10.1586/erd.11.47.
- J44. Carpi, F., Kastelein, N., Talcott, M., & Pappone, C. (2010). Magnetically controllable gastrointestinal steering of video capsules. *IEEE Transactions on Biomedical Engineering*, 58(2), 231-234. DOI: 10.1109/TBME.2010.2087332.
- J43. Carpi, F., Kornbluh, R., Sommer-Larsen, P., De Rossi, D., & Alici, G. (2010). Guest editorial introduction to the focused section on electroactive polymer mechatronics. *IEEE/ASME Transactions on Mechatronics*, 16(1), 1-8.
- J42. Carpi, F., Frediani, G., Nanni, M., & De Rossi, D. (2010). Granularly coupled dielectric elastomer actuators. *IEEE/ASME Transactions On Mechatronics*, 16(1), 16-23. DOI: 10.1109/TMECH.2010.2073714.

2010

- J41. Carpi, F., Bauer, S., & De Rossi, D. (2010). Stretching dielectric elastomer performance. *Science*, 330(6012), 1759-1761. DOI: 10.1126/science.1194773.
- J40. Carpi, F. (2010). Magnetic capsule endoscopy: the future is around the corner. *Expert Review Of Medical Devices*, 7(2), 161-164. DOI: 10.1586/erd.10.3.
- J39. Carpi, F. (2010). Electromechanically active polymers. *Polymer International*, 59(3), 277-278.
- J38. Carpi, F., Menon, C., & De Rossi, D. (2009). Electroactive elastomeric actuator for all-polymer linear peristaltic pumps. *IEEE/ASME Transactions on mechatronics*, 15(3), 460-470. DOI: 10.1109/TMECH.2009.2028884.
- J37. Carpi, F., Raspopovic, S., Frediani, G., & De Rossi, D. (2010). Real-time control of dielectric elastomer actuators via bioelectric and biomechanical signals. *Polymer*

international, 59(3), 422-429. DOI: 10.1002/pi.2757.

- J36. Carpi, F., Frediani, G., & De Rossi, D. (2009). Hydrostatically coupled dielectric elastomer actuators. *IEEE/ASME Transactions On Mechatronics*, 15(2), 308-315. DOI: 10.1109/TMECH.2009.2021651.
- J35. Carpi, F., Frediani, G., Tarantino, S., & De Rossi, D. (2010). Millimetre-scale bubble-like dielectric elastomer actuators. *Polymer International*, 59(3), 407-414. DOI: 10.1002/pi.2744.
- J34. Gallone, G., Galantini, F., & Carpi, F. (2010). Perspectives for new dielectric elastomers with improved electromechanical actuation performance: composites versus blends. *Polymer International*, 59(3), 400-406. DOI: 10.1002/pi.2765.
- J33. Carpi, A., Rossi, G., Coscio, G. D., Iervasi, G., Nicolini, A., Carpi, F., ... & Bartolazzi, A. (2010). Galectin-3 detection on large-needle aspiration biopsy improves preoperative selection of thyroid nodules: A prospective cohort study. *Annals of Medicine*, 42(1), 70-78. DOI: 10.3109/07853890903439778.
- J32. Daheshpour, K., Mazlouman, S. J., Mahanfar, A., Yun, J. X., Han, X., Menon, C., ... & Vaughan, R. G. (2010). Pattern reconfigurable antenna based on moving V-shaped parasitic elements actuated by dielectric elastomer. *Electronics Letters*, 46(13), 886-888. DOI: 10.1049/el.2010.0862.

2009

- J31. Carpi, F., & Pappone, C. (2009). Magnetic maneuvering of endoscopic capsules by means of a robotic navigation system. *IEEE Transactions On Biomedical Engineering*, 56(5), 1482-1490. DOI: 10.1109/TBME.2009.2013336.
- J30. Carpi, F., Benini, G., Tomei, F., Figliuzzi, R. M., & De Napoli, A. (2009). Electroretinographic Wet Electrode. *Medical Engineering & Physics*, 31(8), 923-929. DOI: 10.1016/j.medengphy.2009.05.003.
- J29. Carpi, F., & Migliorini, S. (2009). Non-invasive wet electrocochleography. *IEEE Transactions on Biomedical Engineering*, 56(11), 2744-2747. DOI: 10.1109/TBME.2009.2026178.
- J28. Carpi, F., & Pappone, C. (2009). Stereotaxis Niobe® magnetic navigation system for endocardial catheter ablation and gastrointestinal capsule endoscopy. *Expert review of medical devices*, 6(5), 487-498. DOI: 10.1586/erd.09.32.
- J27. Carpi, F., Frediani, G., & De Rossi, D. (2009). Electroactive elastomeric haptic displays of organ motility and tissue compliance for medical training and surgical force feedback. *IEEE Transactions On Biomedical Engineering*, 56(9), 2327-2330. DOI: 10.1109/TBME.2009.2024691
- J26. Tartarisco, G., Gallone, G., Carpi, F., & Vozzi, G. (2009). Polyurethane unimorph bender microfabricated with Pressure Assisted Microsyringe (PAM) for biomedical applications. *Materials Science and Engineering: C*, 29(6), 1835-1841. DOI: 10.1016/j.msec.2009.02.017.
- J25. Menon, C., Carpi, F., & De Rossi, D. (2009). Concept design of novel bio-inspired distributed actuators for space applications. *Acta Astronautica*, 65(5-6), 825-833. DOI: 10.1016/j.actaastro.2009.01.076.
- J24. Menon, C., De Negueruela, C., Millán, J. D. R., Tonet, O., Carpi, F., Broschart, M., ... & De Rossi, D. (2009). Prospects of brain-machine interfaces for space system control. *Acta Astronautica*, 64(4), 448-456. DOI: 10.1016/j.actaastro.2008.09.008.

2008

- J23. Carpi, F., & Pappone, C. (2008). Magnetic robotic manoeuvring of gastrointestinal video capsules: preliminary phantom tests. *Biomedicine & Pharmacotherapy*, 62(8), 546-549.

DOI: 10.1016/j.biopha.2008.07.057.

- J22. Carpi, F., Khanicheh, A., Mavroidis, C., & De Rossi, D. (2008). MRI compatibility of silicone-made contractile dielectric elastomer actuators. *IEEE/ASME Transactions on Mechatronics*, 13(3), 370-374. DOI: 10.1109/TMECH.2008.924121.
- J21. Carpi, F., Gallone, G., Galantini, F., & De Rossi, D. (2008). Silicone–poly (hexylthiophene) blends as elastomers with enhanced electromechanical transduction properties. *Advanced Functional Materials*, 18(2), 235-241. DOI: 10.1002/adfm.200700757.
- J20. Carpi, F., & De Rossi, D. (2008). Contractile dielectric elastomer actuators: devices and examples of biomimetic and biomedical applications. *Materials Science Research Journal*, 2(1/2), 1-17.

2007

- J19. Carpi, F., Galbiati, S., & Carpi, A. (2007). Controlled navigation of endoscopic capsules: Concept and preliminary experimental investigations. *IEEE Transactions on Biomedical Engineering*, 54(11), 2028-2036. DOI: 10.1109/TBME.2007.894729.
- J18. Carpi, F., Tralli, A., De Rossi, D., & Gaudenzi, P. (2007). Martian jumping rover equipped with electroactive polymer actuators: a preliminary study. *IEEE Transactions on Aerospace and Electronic Systems*, 43(1), 79-92. DOI: 10.1109/TAES.2007.357156.
- J17. Carpi, F., & De Rossi, D. (2007). Bioinspired actuation of the eyeballs of an android robotic face: concept and preliminary investigations. *Bioinspiration & Biomimetics*, 2(2), S50-S63. DOI: 10.1088/1748-3182/2/2/S06.
- J16. Carpi, F., Salaris, C., & De Rossi, D. (2007). Folded dielectric elastomer actuators. *Smart Materials and Structures*, 16(2), S300-S305. DOI: 10.1088/0964-1726/16/2/S15.
- J15. Gallone, G., Carpi, F., De Rossi, D., Levita, G., & Marchetti, A. (2007). Dielectric constant enhancement in a silicone elastomer filled with lead magnesium niobate–lead titanate. *Materials Science and Engineering: C*, 27(1), 110-116. DOI: 10.1016/j.msec.2006.03.003.
- J14. Carpi, A., Nicolini, A., Marchetti, C., Iervasi, G., Antonelli, A., & Carpi, F. (2007). Percutaneous large-needle aspiration biopsy histology of palpable thyroid nodules: technical and diagnostic performance. *Histopathology*, 51(2), 249-257. DOI: 10.1111/j.1365-2559.2007.02764.x.

2006

- J13. Carpi, F., Galbiati, S., & Carpi, A. (2006). Magnetic shells for gastrointestinal endoscopic capsules as a means to control their motion. *Biomedicine & Pharmacotherapy*, 60(8), 370-374. DOI: 10.1016/j.biopha.2006.07.001.
- J12. Carpi, F., & Tomei, F. (2006). Non-invasive electroretinography. *Biomedicine & Pharmacotherapy*, 60(8), 375-379. DOI: 10.1016/j.biopha.2006.07.002.
- J11. Carpi, F., & De Rossi, D. (2006). Colours from electroactive polymers: Electrochromic, electroluminescent and laser devices based on organic materials. *Optics & Laser Technology*, 38(4-6), 292-305. DOI: 10.1016/j.optlastec.2005.06.019.
- J10. Vozzi, G., Carpi, F., & Mazzoldi, A. (2006). Realization of conducting polymer actuators using a controlled volume microsyringe system. *Smart Materials and Structures*, 15(2), 279–287. DOI: 10.1088/0964-1726/15/2/006.

2005

- J9. Carpi, F., & De Rossi, D. (2005). Electroactive polymer-based devices for e-textiles in biomedicine. *IEEE Transactions on Information Technology in Biomedicine*, 9(3), 295-318. DOI: 10.1109/TITB.2005.854514.
- J8. Carpi, F., Migliore, A., Serra, G., & De Rossi, D. (2005). Helical dielectric elastomer

actuators. *Smart Materials and Structures*, 14(6), 1210-1216. DOI: 10.1088/0964-1726/14/6/014.

- J7. Carpi, F., & Rossi, D. D. (2005). Improvement of electromechanical actuating performances of a silicone dielectric elastomer by dispersion of titanium dioxide powder. *IEEE Transactions on Dielectrics and Electrical Insulation*, 12(4), 835-843. DOI: 10.1109/TDEI.2005.1511110.
- J6. De Rossi, D., Carpi, F., & Scilingo, E. P. (2005). Polymer based interfaces as bioinspired 'smart skins'. *Advances in Colloid and Interface Science*, 116(1-3), 165-178. DOI: 10.1016/j.cis.2005.05.002.

2004

- J5. Carpi, F., & De Rossi, D. (2004). Dielectric elastomer cylindrical actuators: electromechanical modelling and experimental evaluation. *Materials Science and Engineering: C*, 24(4), 555-562. DOI: 10.1016/j.msec.2004.02.005.
- J4. Mazzoldi, A., Carpi, F., & De Rossi, D. (2004). Polymers responding to electrical or electrochemical stimuli for linear actuators. *Annales De Chimie-Science Des Materiaux*, 29(6), 55-64.
- J3. Pioggia, G., Ahluwalia, A., Carpi, F., Marchetti, A., Ferro, M., Rocchia, W., & Rossi, D. D. (2004). FACE: Facial automaton for conveying emotions. *Applied Bionics and Biomechanics*, 1(2), 91-100.

2003

- J2. Carpi, F., Chiarelli, P., Mazzoldi, A., & De Rossi, D. (2003). Electromechanical characterisation of dielectric elastomer planar actuators: comparative evaluation of different electrode materials and different counterloads. *Sensors and Actuators A: Physical*, 107(1), 85-95. DOI: 10.1016/S0924-4247(03)00257-7.
- J1. De Rossi, D., Carpi, F., Lorussi, F., Mazzoldi, A., Paradiso, R., Scilingo, E. P., & Tognetti, A. (2003). Electroactive fabrics and wearable biomonitoring devices. *AUTEX Research Journal*, 3(4), 180-185.

Edited books

- B3. F. Carpi, Editor, *Electromechanically Active Polymers: a Concise Reference*, Zurich: Springer, 2016. ISBN: 978-3-319-31528-7.
- B2. F. Carpi and E. Smela, Editors, *Biomedical Applications of Electroactive Polymer Actuators*, Chichester: Wiley, 2009. ISBN: 978-0-470-77305-5.
- B1. F. Carpi, D. De Rossi, R. Kornbluh, R. Pelrine and P. Sommer-Larsen, Editors, *Dielectric Elastomers as Electromechanical Transducers. Fundamentals, Materials, Devices, Models and Applications of an Emerging Electroactive Polymer Technology*, Oxford: Elsevier, 2008. ISBN: 9780080474885. doi:10.1016/B978-0-08-047488-5.X0001-9.

Book chapters

2020:

- BC18. F. Carpi, M. Coppola, R. Di Franco., E. Rosi, V. Vizzarro, "Bioinspired Electromechanically Active Polymer-Based Robotics", In M.H. Ang, O. Khatib, B. Siciliano, Eds., *Encyclopedia of Robotics*. Springer, Berlin, Heidelberg. DOI: 10.1007/978-

3-642-41610-1_118-1.

2019:

- BC17. Frediani, G., Botondi, B., Quartini, L., Zonfrillo, G., Bocchi, L., & Carpi, F. (2019). Wearable kinematic monitoring system based on piezocapacitive sensors. *Studies in Health Technology and Informatics*, 261, 103-108. DOI: 10.3233/978-1-61499-975-1-103.

2016:

- BC16. Q. Pei, W. Hu, D. McCoul, S.J. Biggs, D. Stadler and F. Carpi, "Dielectric Elastomers as EAPs: Applications", In *Electromechanically Active Polymers: a Concise Reference*, F. Carpi, Editor, Springer, Zurich, pp. 739-765, 2016.

2014:

- BC15. F. Carpi, "Bioinspired artificial muscles based on dielectric elastomers", In *Handbook of Biomimetics and Bioinspiration, Volume 1: Bioinspired Materials*, E. Jabbari, A. Khademhosseini, D.-H. Kim, A. Ghaemmaghami, Eds, World Scientific Publishing, Singapore, pp. 17-30, 2014.

2009:

- BC14. F. Carpi and D. De Rossi, "EMG-based and gaze-tracking-based man-machine interfaces", in *Brain Machine Interfaces for Space Applications: Enhancing Astronaut Capabilities - International Review of Neurobiology* series, Vol. 86, L. Rossini, D. Izzo and L. Summerer, Editors, Academic Press - Elsevier, pp. 3-21, 2009.
- BC13. F. Carpi and E. Smela, "Electroactive polymers as smart materials for actuation", In *Biomedical Applications of Electroactive Polymer Actuators*, F. Carpi and E. Smela, Editors, Wiley, Chichester, pp. 1-4, 2009.
- BC12. F. Carpi, A. Mannini and D. De Rossi, "Dynamic splint-like hand orthosis for finger rehabilitation", In *Biomedical Applications of Electroactive Polymer Actuators*, F. Carpi and E. Smela, Editors, Wiley, Chichester, pp. 443-461, 2009.

2008:

- BC11. F. Carpi and D. De Rossi, "Supramolecular systems based on dielectric elastomer actuators for biomimetic and biomedical applications", In *Biomimetic and Supramolecular Systems Research*, A. H. Lima, Editor, Nova Publishers, New York, pp. 33-50, 2008.
- BC10. F. Carpi, G. Fantoni, G. Frediani and D. De Rossi, "Buckling actuators with integrated displacement sensor", In *Dielectric Elastomers as Electromechanical Transducers*, F. Carpi, D. De Rossi, R. Kornbluh, R. Pelrine and P. Sommer-Larsen, Editors, Elsevier, Oxford, pp. 132-140, 2008.
- BC9. F. Carpi and D. De Rossi, "Contractile monolithic linear actuators", In *Dielectric Elastomers as Electromechanical Transducers*, F. Carpi, D. De Rossi, R. Kornbluh, R. Pelrine and P. Sommer-Larsen, Editors, Elsevier, Oxford, pp. 123-131, 2008.
- BC8. F. Carpi, G. Gallone, F. Galantini and D. De Rossi, "Enhancing the dielectric permittivity of elastomers", In *Dielectric Elastomers as Electromechanical Transducers*, F. Carpi, D. De Rossi, R. Kornbluh, R. Pelrine and P. Sommer-Larsen, Editors, Elsevier, Oxford, pp. 51-68, 2008.
- BC7. F. Carpi and D. De Rossi, "Electroactive polymers as smart materials with intrinsic actuation properties: new functionalities for biomaterials", In *Biomaterials Fabrication and Processing Handbook*, P. K. Chu and X. Liu, Editors, CRC Press/Taylor and Francis Group, Boca Raton, USA, pp. 483-503, 2008.

2007:

- BC6. F. Carpi, M. Pucciani, D. De Rossi, “Mechanical models and actuation technologies for active fabrics: a brief survey of the state of the art”, In *Multifunctional Barriers for Flexible Structure. Textile, Leather and Paper*, S. Duquesne, C. Magniez, G. Camino, Editors, Springer, pp. 151-168, 2007.
- BC5. H. Janocha, R. Leletty, F. Claeysen, G. Engdahl, J. Hesselbach, W.A. Bulloug, J.D. Carlson, A. Mazzoldi, F. Carpi, D. De Rossi, H. Seidel, K. Kuhnen, T. Würtz, “Actuators in adaptronics”, In *Adaptronics and Smart Structures: Basics, Materials, Design, and Applications* – 2nd Edition, H. Janocha, Editor, Springer-Verlag, pp. 95-300, 2007.
- 2005:**
- BC4. D. De Rossi, F. Carpi, F. Lorussi, E. P. Scilingo, A. Tognetti, R. Paradiso, “Electroactive fabrics and wearable man-machine interfaces”, In *Wearable Electronics and Photonics*, Xiao-ming Tao, Editor, Elsevier - Woodhead Publishing Limited, Cambridge, pp. 59-80, 2005.
- 2004:**
- BC3. D. De Rossi, F. Carpi, A. Mazzoldi, “Electrically responsive polymers as materials for “artificial muscles””, In *Soft Actuators: Aiming at Realizations of Artificial Muscles*, Yoshihito Osada, Editor, NTS Inc., pp. 119-135, 2004.
- BC2. D. De Rossi, F. Lorussi, E. P. Scilingo, F. Carpi, A. Tognetti, M. Tesconi, “Artificial kinaesthetic systems for telerehabilitation”, In *Wearable eHealth Systems for Personalised Health Management: State of the Art and Future Challenges*, A. Lymberis and D. De Rossi, Editors, IOS Press, Amsterdam, pp. 209-213, 2004.
- 2003:**
- BC1. D. De Rossi, A. Mazzoldi, F. Carpi, “Biomimetic macromolecular actuators”, In *Molecular Functional Materials and Devices*, Katsumi Yoshino, Editor, NTS Inc., pp. 564-573, 2003.

Papers in conference proceedings

2018

- C72. H. Boys, G. Frediani, M. Ghilardi, S. Poslad, J. Busfield, F. Carpi, "Soft wearable non-vibratory tactile displays", *Proc. of RoboSoft 2018 - the 2018 IEEE International Conference on Soft Robotics*, Livorno, Italy, 24-28 April 2018, pp. 270-275, 2018.

2017

- C71. H. Boys, G. Frediani, S. Poslad, J. Busfield, F. Carpi, "A dielectric elastomer actuator-based tactile display for multiple fingertip interaction with virtual soft bodies", In *Smart Structures and Materials 2017: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen Editor, *Proc. of SPIE*, Vol. 10163, 101632D, 2017.
- C70. M. Ghilardi, J. Busfield, F. Carpi, “Electrical breakdown detection system for dielectric elastomer actuators”, In *Smart Structures and Materials 2017: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen Editor, *Proc. of SPIE*, Vol. 10163, 101632B, 2017.

2016

- C69. G. Frediani, H. Boys, S. Poslad and F. Carpi, "Enabling wearable soft tactile displays with electroactive smart elastomers", In *Haptics: Perception, Devices, Control, and Applications, Part II. Lecture Notes in Computer Science*, F. Bello et al. Editors, Vol. 9775, Springer International Publishing, Switzerland, *Proceedings of EuroHaptics 2016*, London, UK, 4-7 July 2016, pp. 326–334, 2016.
- C68. B. Chen, M. Kollosche, M. Stewart, J. Busfield, F. Carpi, "Electrical breakdown of dielectric elastomer: influence of compression, electrode's curvature and environmental humidity", In *Smart Structures and Materials 2016: Electroactive Polymer Actuators and Devices*, Y.

Bar-Cohen Editor, *Proc. of SPIE*, Vol. 9798, 97980Q, 2016.

2015

C67.

BY INVITATION:

F. Carpi, M. Pieroni, C. Lagomarsini, D. De Rossi, "Electrically tuneable lenses made of electromechanically active polymers", *Proc. of the Xth International Workshop on Adaptive Optics for Industry and Medicine – AOIM 2015*, Stefano Bonora Editor, Padova, Italy, 15-19 June 2015, pp. 143-146, 2015.

2012

C66.

BY INVITATION:

F. Carpi, G. Frediani, D. De Rossi, "Electroactive elastomeric actuators for biomedical and bioinspired systems", *Proc. of BioRob 2012 – The 4th IEEE International Conference on Biomedical Robotics and Biomechanics – Invited session: Smart materials and actuators for Soft Robotics*, Roma, 24-27 June 2012, pp. 623-627, 2012.

C65.

F. Carpi, G. Frediani, and D. De Rossi, "Bioinspired tunable lens driven by electroactive polymer artificial muscles", In *Biomimetic and Biohybrid Systems - First International Conference. Lecture Notes in Artificial Intelligence series*, T.T. Prescott, N.F. Lepora, A. Mura, P.F.M.J. Verschure, Eds., Vol. 7375, *Proceedings of Living Machines 2012 - First International Conference on Biomimetics and Biohybrid Systems*, Barcelona, Spain, 9-12 July 2012, pp. 74-82, 2012.

2011

C64.

R. Vertechy, A. Frisoli, M. Bergamasco, F. Carpi, G. Frediani, D. De Rossi, "Modelling and experimental validation of buckling dielectric elastomer actuators", *Proc. of the ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems – SMASIS 2011*, 18-21 September 2011, Scottsdale, Arizona, USA, pp. 1-8, 2011.

C63.

BY INVITATION:

D. De Rossi, F. Carpi, N. Carbonaro, A. Tognetti, E. P. Scilingo, "Electroactive polymer patches for wearable haptic interfaces", *Proc. of EMBC 2011, the 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Boston, MA, USA, 30 Agosto – 3 September 2011, pp. 8369-8372, 2011.

C62.

F. Galantini, G. Gallone, F. Carpi, G. Levita, D. De Rossi, "Soft elastomeric electrets for electro-active polymers", *Proc. of 14th International Symposium on Electrets*, 29-31 August 2011, Montpellier, France, pp. 31-32, 2011.

C61.

F. Carpi, G. Frediani, M. Nanni and D. De Rossi, "Dielectric elastomer actuators with granular coupling", In *Smart Structures and Materials 2011: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen Editor, *Proc. of SPIE*, Vol. 7976, 79760X-1 - 79760X-8, 2011.

C60.

F. Carpi, G. Frediani and D. De Rossi, "Opportunities of hydrostatically coupled dielectric elastomer actuators for haptic interfaces", In *Smart Structures and Materials 2011: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen Editor, *Proc. of SPIE*, Vol. 7976, 797618-1 - 797618-9, 2011.

C59.

BY INVITATION:

F. Carpi, G. Frediani and D. De Rossi, "Hydrostatically coupled dielectric elastomer actuators: new opportunities for haptics", In *Materials Research Society Symposium Proc.*, Vol. 1312, mrsf10-1312-hh01-01-1 - mrsf10-1312-hh01-01-10, 2011.

2010

C58.

BY INVITATION:

F. Carpi, H.-E. Kiil, R. Kornbluh, P. Sommer-Larsen, G. Alici, "Electroactive Polymer Actuators: From Lab to Market", *Proc. of ACTUATOR 2010 - International Conference and Exhibition on New Actuator Systems and Applications*, H. Borgmann, Editor, WFB Wirtschaftsförderung Bremen GmbH, pp. 405-417, 2010.

C57.

F. Carpi, G. Frediani and D. De Rossi, "Contractile dielectric elastomer actuator based on

- hydrostatic coupling”, *Proc. of ACTUATOR 2010 - International Conference and Exhibition on New Actuator Systems and Applications*, H. Borgmann, Editor, WFB Wirtschaftsförderung Bremen GmbH, pp. 880-883, 2010.
- C56. F. Carpi, G. Frediani and D. De Rossi, “Bubble-like dielectric elastomer actuator with hydrostatic coupling for tactile displays”, *Proc. of ACTUATOR 2010 - International Conference and Exhibition on New Actuator Systems and Applications*, H. Borgmann, Editor, WFB Wirtschaftsförderung Bremen GmbH, pp. 884-887, 2010.
- C55. F. Galantini, G. Gallone, F. Carpi, D. De Rossi, "Soft elastic modulus and high dielectric constant: a synergistic matching for elastomeric actuators", *Proc. of ACTUATOR 2010 - International Conference and Exhibition on New Actuator Systems and Applications*, H. Borgmann, Editor, WFB Wirtschaftsförderung Bremen GmbH, pp. 862-866, 2010.
- C54. F. Carpi and D. De Rossi, "Electroactive polymer artificial muscles: an overview", In *Design and Nature V - WIT Transactions on Ecology and the Environment*, C. A. Brebbia and A. Carpi, Editors, WIT Press, Proceedings of Design and Nature V, Pisa, Italy, 28-30 June 2010, pp. 353-364, 2010.
- C53. F. Carpi, A. Carpi and M. A. Russo, “Natural and artificial helical structures”, In *Design and Nature V - WIT Transactions on Ecology and the Environment*, C. A. Brebbia and A. Carpi, Editors, WIT Press, Proceedings of Design and Nature V, Pisa, Italy, 28-30 June 2010, pp. 585-592, 2010.
- C52. M. Tafani, F. Carpi, E. Morgante, A. Russo, A. Carpi, M. Fini, B. Marino, A. Frustaci and M. A. Russo, “The vectorial organization of the human myocardium is designed for optimal electrical and contractile activity: clinical implications of its alterations”, In *Design and Nature V - WIT Transactions on Ecology and the Environment*, C. A. Brebbia and A. Carpi, Editors, WIT Press, Proceedings of Design and Nature V, Pisa, Italy, 28-30 June 2010, pp. 593-602, 2010.
- C51. F. Carpi, G. Frediani and D. De Rossi, “Hydrostatically coupled dielectric elastomer actuators for tactile displays and cutaneous stimulators”, In *Smart Structures and Materials 2010: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen Editor, *Proc. of SPIE*, Vol. 7642, pp. 76420E-1 - 76420E-6, 2010.
- 2009**
- C50. F. Carpi, “Robotic magnetic manoeuvring of endoscopic video capsules: phantom tests”, In *Medical Physics and Biomedical Engineering - World Congress 2009, IFMBE Proc. 25/VI*, O. Dössel, W.C. Schlegel, Editors, pp. 47–50, 2009.
- C49. F. Carpi, G. Frediani and D. De Rossi, “Electromechanically active polymers: new opportunities for biomaterials and tissue engineering”, In *Medical Physics and Biomedical Engineering - World Congress 2009, IFMBE Proc. 25/X*, O. Dössel, W.C. Schlegel, Editors, pp. 53–56, 2009.
- C48. *BY INVITATION:*
D. De Rossi, F. Carpi, F. Lorussi, E.P. Scilingo, A. Tognetti, "Wearable kinesthetic systems and emerging technologies in actuation for upperlimb neurorehabilitation", In *Proc. of EMBC 2009. 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Minneapolis, Minnesota, USA, 2-6 September 2009, pp. 6830 – 6833.
- C47. F. Carpi, G. Frediani and D. De Rossi, “A new concept for dielectric elastomer actuators: hydrostatic coupling”, In *Smart Sensors, Actuators, and MEMS IV*, Ulrich Schmid, Carles Cané, Herbert Shea, Editors, *Proc. of SPIE*, Vol. 7362, pp. 73620H-1 - 73620H-8, 2009.
- C46. F. Carpi, G. Frediani and D. De Rossi, “Dielectric elastomer actuators with hydrostatic coupling”, In *Smart Structures and Materials 2009: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen Editor, *Proc. of SPIE*, Vol. 7287, pp. 72870D-1 - 72870D-8, 2009.
- 2008**
- C45. F. Carpi, C. Menon and D. De Rossi, "Bio-inspired distributed electroactive polymer

- actuators for possible space applications: concept design”, In *Artificial Muscle Actuators using Electroactive Polymers. Proceedings of the 3rd International Conference on Smart Materials, Structures and Systems – CIMTEC 2008*, P. Vincenzini, Y. Bar-Cohen and F. Carpi, Editors. Advances in Science and Technology, Vol. 61, Trans Tech Publications, pp. 180-185, 2008.
- C44. F. Carpi, G. Frediani, A. Mannini and D. De Rossi, "Contractile and buckling actuators based on dielectric elastomers: devices and applications", In *Artificial Muscle Actuators using Electroactive Polymers. Proceedings of the 3rd International Conference on Smart Materials, Structures and Systems – CIMTEC 2008*, P. Vincenzini, Y. Bar-Cohen and F. Carpi, Editors. Advances in Science and Technology, Vol. 61, Trans Tech Publications, pp. 186-191, 2008.
- C43. G. Gallone, F. Carpi, F. Galantini, D. De Rossi and G. Levita, “Enhancing the electro-mechanical response of Maxwell stress actuators”, In *Artificial Muscle Actuators using Electroactive Polymers. Proceedings of the 3rd International Conference on Smart Materials, Structures and Systems – CIMTEC 2008*, P. Vincenzini, Y. Bar-Cohen and F. Carpi, Editors. Advances in Science and Technology, Vol. 61, Trans Tech Publications, pp. 46-53, 2008.
- C42. D. De Rossi, F. Carpi and F. Galantini, “Functional materials for wearable sensing, actuating and energy harvesting”, In *Artificial Muscle Actuators using Electroactive Polymers. Proceedings of the 3rd International Conference on Smart Materials, Structures and Systems – CIMTEC 2008*, P. Vincenzini, Y. Bar-Cohen and F. Carpi, Editors. Advances in Science and Technology, Vol. 61, Trans Tech Publications, pp. 247-256, 2008.
- C41. A. Mahanfar, C. Menon, R. G. Vaughan, F. Carpi, M. Parameswaran, K. Daheshpour, “Tunable dielectric resonator antennas using voltage-controlled mechanical deformation”, In *Artificial Muscle Actuators using Electroactive Polymers. Proceedings of the 3rd International Conference on Smart Materials, Structures and Systems – CIMTEC 2008*, P. Vincenzini, Y. Bar-Cohen and F. Carpi, Editors. Advances in Science and Technology, Vol. 61, Trans Tech Publications, pp. 614-619, 2008.
- C40. F. Carpi, E. P. Scilingo, D. De Rossi, “Dispositivi polimerici e convenzionali integrabili in sistemi indossabili”, In *Sistemi Indossabili per la Salute e la Protezione dell’Uomo*, Bonfiglio A., Cerutti S., De Rossi D., Magenes G., Editors, Patron Editore, Proceedings of XXVII Scuola Annuale del Gruppo Nazionale di Bioingegneria (GNB), Bressanone, 16 September 2008, pp. 105-143, 2008.
- C39. F. Carpi, A. Khanicheh, C. Mavroidis and D. De Rossi, “Silicone made contractile dielectric elastomer actuators inside 3-Tesla MRI environment”, *Proc. Of the IEEE/RSJ 2008 International Conference on Intelligent Robots and Systems (IROS 2008)*, Nice, September 22-26, 2008, pp. 137-142.
- C38. F. Carpi, G. Frediani, G. Fantoni and D. De Rossi, “Buckling actuator and sensor based on dielectric elastomers”, *Proc. of Actuator 2008*, H. Borgmann, Editor, pp. 260-263, 2008.
- C37. F. Carpi, A. Mannini and D. De Rossi, “Elastomeric contractile actuators for hand rehabilitation splints”, In *Smart Structures and Materials 2008: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. of SPIE*, Vol. 6927, pp. 692707-5 – 692707-10, 2008.
- C36. F. Carpi, G. Gallone, F. Galantini and D. De Rossi, “Enhancement of the electromechanical transduction properties of a silicone elastomer by blending with a conjugated polymer”, In *Smart Structures and Materials 2008: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. Of SPIE*, Vol. 6927, pp. 692707-1 – 692707-11, 2008.
- C35. G. Pioggia, M. Ferro, F. Carpi, E. Labbozzetta, F. Di Francesco, F. Lorussi, D. De Rossi, “A biomimetic sensing skin: characterization of piezoresistive fabric-based elastomeric sensors”, in *Sensors and Microsystems, Proceedings of the 10th Italian Conference*, World Scientific Publishing, Firenze, 15-17 February 2005, p. 584-589, 2008.

2007

- C34. S. Baldacci, L. Serafini, V. S. Zolessi, F. Thurecht, E. K. Pfeiffer, P. Sommer Larsen, F. Carpi, D. De Rossi, L. Lampani and P. Gaudenzi, “Development of electro active polymers configurations to monitor and control deployable space structures”, *Proc. of 1st CEAS – European Air and Space Conference*, Berlin, 10-13 September 2007, pp. 1-10.
- C33. *BY INVITATION:*
F. Carpi, D. De Rossi, “Contractile folded dielectric elastomer actuators”, In *Smart Structures and Materials 2007: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. of SPIE*, Vol. 6524, pp. 65240D-1 - 65240D-13, 2007.

2006

- C32. C. Menon, F. Carpi, D. De Rossi, “Concept design of novel bio-inspired distributed actuators for space applications”, *Proc. of the AIAA 57th International Astronautical Congress - IAC 2006*, Valencia, 2-6 October 2006, pp. 6841-6849.
- C31. C. Menon, C. de Negueruela, J. del R. Millán, O. Tonet, F. Carpi, M. Broschart, P. Ferrez, A. Buttfield, P. Dario, L. Citi, C. Laschi, M. Tombini, F. Sepulveda, R. Poli, R. Palaniappan, F. Tecchio, P. Maria Rossini, D. De Rossi, “Prospects of brain-machine interfaces for space system control”, *Proc. of the AIAA 57th International Astronautical Congress - IAC 2006*, Valencia, 2-6 October 2006, pp. 6829-6840.
- C30. G. Gallone, M. Cirillo, F. Carpi, D. De Rossi and G. Levita, “Modification of tensile mechanical and dielectric properties in shape memory polyurethane-carbon black 0-3 composites”, *VIII Convegno Nazionale AIMAT – Associazione Italiana di Ingegneria dei Materiali*, Università di Palermo, 27 June – 1 July 2006.
- C29. F. Carpi, S. Raspopovic, D. De Rossi, “Dielectric elastomer actuators driven by human electrophysiological signals”, *Proc. of Actuator 2006*, H. Borgmann, Editor, pp. 316-319, 2006.
- C28. F. Carpi, D. De Rossi, “A new contractile linear actuator made of dielectric elastomers with folded structure”, *Proc. of Actuator 2006*, H. Borgmann, Editor, pp. 101-103, 2006.
- C27. F. Carpi, G. Fantoni, D. De Rossi, “Bubble-like dielectric elastomer actuator with integrated sensor: device and applications”, *Proc. of Actuator 2006*, H. Borgmann, Editor, pp. 872-875, 2006.
- C26. F. Carpi, S. Raspopovic, D. De Rossi, “Activation of dielectric elastomer actuators by means of human electrophysiological signals”, In *Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. Of SPIE*, Vol. 6168, pp. 61681B-1 – 61681B-7, 2006.
- C25. F. Carpi, G. Fantoni, P. Guerrini, D. De Rossi, “Buckling dielectric elastomer actuators and their use as motors for the eyeballs of an android face”, In *Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. Of SPIE*, Vol. 6168, pp. 61681A-1 – 61681A-6, 2006.
- C24. F. Carpi, D. De Rossi, “Contractile dielectric elastomer actuator with folded shape”, In *Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. Of SPIE*, Vol. 6168, pp. 61680D-1 – 61680D-6, 2006.
- C23. *BY INVITATION:*
F. Carpi, D. De Rossi, “Biomimetic dielectric elastomer actuators”, *Proc of BioRob 2006 – The First IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics*, Pisa, Italy, 20-22 February 2006, pp. 1073–1078.
- C22. D. De Rossi, F. Carpi, F. Lorussi, E. P. Scilingo, A. Tognetti, “Wearable mechanosensing and emerging technologies in fabric-based actuation”, in *Intelligent Textiles for Personal Protection and Safety. NATO Security through Science Series D: Information and Communication Security*, Vol. 3, S. Jayaraman, P. Kiekens, A.M. Grancaric, Editors, IOS Press, *Proceedings of NATO Advanced Research Workshop on Intelligent Textiles for*

Personal Protection and Safety, Zadar, Croatia, 7-10 September 2005, pp. 55-64, 2006.

2005

- C21. F. Carpi, P. Sommer-Larsen, D. De Rossi, P. Gaudenzi, L. Lampani, F. Campanile, E. Pfeiffer, G. Neri, S. Baldacci, “Electroactive polymers: new materials for spacecraft structures”, *Proc of the European Conference on Spacecraft Structures Materials and Mechanical Testing*, Noordwijk, 10-12 May 2005.
- C20. *BY INVITATION:*
F. Carpi, A. Migliore, D. De Rossi, “A new contractile linear actuator made of dielectric elastomers”, In *Smart Structures and Materials 2005: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. of SPIE*, Vol. 5759, pp. 64-74, 2005.
- C19. F. Carpi and D. De Rossi, “Eyeball pseudo-muscular actuators for an android face”, In *Smart Structures and Materials 2005: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. of SPIE*, Vol. 5759, pp. 16-21, 2005.
- C18. D. De Rossi, F. Lorussi, E.P. Scilingo, F. Carpi, A. Tognetti, M. Tesconi, “Artificial kinesthetic systems for telerehabilitation”, *Studies in Health Technology and Informatics*, Vol. 108, *Proceeding of the 1st International Workshop on New Generation of Wearable Systems for eHealth*, Lucca, Italy; 11-14 December 2003, pp. 209-213, 2005.

2004

- C17. D. De Rossi, F. Carpi, G. Jeronimidis, P. Gaudenzi, A. Tralli, V. Zolesi, M. Ayre, “Electro-Active Polymers for actuation and sensing in space applications”, *Proc. of the 55th International Astronautical Congress 2004*, Vancouver, 4-8 October 2004, pp. 1991-2001.
- C16. D. De Rossi, F. Carpi, “Physically functionalised materials for personal monitoring and support”, *Proc. of European Workshop On The Applications Of Nanotechnology In Environment And Health*, D. G. Rickerby, B. Larsen, F. Rossi, Editors, Ispra (Varese), 17-19 May 2004, pp. 46-51.
- C15. F. Carpi, D. De Rossi, “Theoretical description and fabrication of a new dielectric elastomer actuator showing linear contractions”, *Proc. of Actuator 2004*, H. Borgmann, Editor, pp. 344-347, 2004.
- C14. D. De Rossi, F. Lorussi, E. P. Scilingo, F. Carpi, M. Tesconi, A. Tognetti and P. Orsini, “An upper limb kinesthetic-like system for tele-rehabilitation”, In *Medicon and Health Telematics 2004, IFMBE Proc.*, Vol. 6, 2004.
- C13. D. De Rossi, A. Mazzoldi, F. Carpi, “Bioinspired macromolecular actuators”, *Advanced Materials Forum II*, R. Martins, E. Fortunator, I. Ferreira, C. Dias, Editors, Trans Tech Publications, Vol. 455-456, *Proceedings of Materiais 2003 - the II International Materials Symposium*, 14-16 April 2003, Costa da Caparica (Lisbon), Portugal, pp. 406-410, 2004.

2003

- C12. A. Tognetti, F. Carpi, F. Lorussi, A. Mazzoldi, P. Orsini, E.P. Scilingo, M. Tesconi, D. De Rossi, “Wearable sensory-motor orthoses for tele-rehabilitation”, *Proc. of the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Cancun, 17-21 September 2003, pp. 3724-3727.
- C11. A. Mazzoldi, F. Carpi, D. De Rossi, “Smart materials as actuators”, *Proc. of the International School on Advanced Material Science and Technology - Smart Materials and Nanotechnologies*, Jesi, 26-29 August 2003, pp. 42-51.
- C10. D. De Rossi, F. Carpi, F. Lorussi, A. Mazzoldi, R. Paradiso, E.P. Scilingo, A. Tognetti, “Electroactive fabrics and wearable biomonitoring devices”, *Proc. of the 3rd AUTEX Conference*, Book 1, Gdansk, 25-27 June 2003, pp. 50-54.
- C9. F. Lorussi, A. Tognetti, F. Carpi, A. Mazzoldi, D. De Rossi, “Recruited dielectric elastomer motor units as a pseudomuscular actuator”, In *Smart Structures and Materials 2003: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. of SPIE*, Vol.

5051, pp 464-467, 2003.

- C8. F. Carpi, A. Mazzoldi, D. De Rossi, “High-strain dielectric elastomer for actuation”, In *Smart Structures and Materials 2003: Electroactive Polymer Actuators and Devices*, Y. Bar-Cohen, Editor, *Proc. of SPIE*, Vol. 5051, pp 419-422, 2003.

2002

- C7. F. Carpi, P. Chiarelli, A. Mazzoldi, D. De Rossi, “Dielectric elastomer planar actuators for small scale applications”, In *European workshop on smart structures in engineering and technology*, B. Culshaw and P.-F. Gobin, Editors, *Proc. of SPIE*, Vol. 4763, pp. 169-172, Presquile de Giens, France, 2002.
- C6. BY INVITATION:
F. Carpi, F. Lorussi, A. Mazzoldi, G. Pioggia, E.P. Scilingo, D. De Rossi, “Electroactive polymers based skin and muscles for man machine interfaces”, In *Materials Research Society Symposium Proceedings.*, Vol. 698, pp. 29-33, 2002, MRS, Boston, MA; United States, 26 - 30 November 2001.
- C5. D. De Rossi, G. Pioggia, F. Carpi, A. Ahluwalia, F. Lorussi, W. Rocchia, “Creating facial expressions using polymeric muscles”, *Proc. of the First World Congress on Biomimetics and Artificial Muscles*, Albuquerque, New Mexico, 9-11 December 2002, pp. 1-8, 2002.
- C4. F. Carpi, P. Chiarelli, A. Mazzoldi, D. De Rossi, “Performances of dielectric elastomer planar actuators”, *Proc. of Actuator 2002*, H. Borgmann, Editor, pp. 640-643, 2002.
- C3. D. De Rossi, A. Mazzoldi, F. Carpi, E. P. Scilingo, F. Lorussi, A. Tognetti, “Electroactive fabrics for distributed, conformable and interactive systems”, *Proc. of IEEE Sensors 2002*, Orlando, Florida, June 12-14, 2002, pp. 1608-1613, 2002.
- C2. BY INVITATION:
D. De Rossi, F. Carpi, F. Lorussi, A. Mazzoldi, P. Scilingo, A. Tognetti, “Electroactive polymer fibers and fabrics for distributed, conformable and interactive systems”, In *Structural Health Monitoring 2002 - Proc. of the First European Workshop on Structural Health Monitoring*, D. L. Balageas Editor, DesTech Publications, Lancaster, Pennsylvania, pp.106-114, 2002.
- C1. F. Carpi, P. Chiarelli, A. Mazzoldi, D. De Rossi, “Characterization of dielectric elastomer planar actuators”, In *Sensors and Microsystems*, C. Di Natale and A. D'amico, Editors, World Scientific Publishing, Singapore, *Proceedings of the 7th National Conference on Sensors and Microsystems*, Bologna, Italy, 4 - 6 February 2002, pp. 33-39, 2002.

Conference abstracts/short papers

2022

- A79. F. Carpi, “Electroactive polymer-based smart scaffolds for tissue engineering and regenerative medicine”, *Proc. of TERMC 2022 - International Conference on Tissue Engineering and Regenerative Medicine – 2nd edition*, Online, 16-17 September 2022.
- A78. B. Grandinetti, R. Rossi, L. Caserio, D. Martella, C. Credi, F. Carpi, C. Ferrantini, L. Sacconi, C. Parmeggiani, E. Cerbai, “Fluid mixer with multiple degrees of freedom enabled by dielectric elastomer actuators”, *Proc. of EuroEAP 2022 – Tenth International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles*, Chianciano Terme, Italy, 7-9 June 2022.
- A77. G. Sasso, J. Busfield, F. Carpi, “Fluid mixer with multiple degrees of freedom enabled by dielectric elastomer actuators”, *Proc. of EuroEAP 2022 – Tenth International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles*, Chianciano Terme, Italy, 7-9 June 2022.
- A76. G. Frediani, F. Carpi, “Simulation of material softness: wearable non-vibratory tactile

displays for online shopping”, *PI Apparel Europe 2022*, Online, 26 April 2022.

2021

- A75. F. Carpi, “Electroactive polymers as ‘artificial muscle’ materials: New opportunities for biomaterials and tissue engineering”, *Proc. of TERMC 2021 - International Conference on Tissue Engineering and Regenerative Medicine*, Online, 20 September 2021.
- A74. G. Sasso, J. Busfield, F. Carpi, “2D positioner driven by a double-cone dielectric elastomer actuator”, *Proc. of EuroEAP 2021 – International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles*, Online, 1-3 June 2021.
- A73. G. Frediani, L. Bocchi, F. Vannetti, G. Zonfrillo, F. Carpi, “Monitoring flexions and torsions of the trunk: dielectric elastomer stretch sensors vs inertial sensors”, *Proc. of EuroEAP 2021 – International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles*, Online, 1-3 June 2021.

2019

- A72. L. Chen, M. Ghilardi, F. Carpi and J.J.C. Busfield, “Changes in optical transparency of a soft membrane using a dielectric elastomer actuator”, *Proc. of IRC 2019 – International Rubber Conference*, London, UK, 3-5 September 2019.

2018

- A71. G. Frediani, L. Fabbri, F. Gerli, S. Pancani, F. Vannetti, F. Carpi, “Wearable devices for detecting hand movements and returning non-vibratory tactile feedback”, *Proc. of GNB 2018 – Sixth Congress of the National Bioengineering Group*, Milan, Italy, 25-27 June 2018.
- A70. J. Costa, M. Ghilardi, H. Boys, J.C. Busfield, A. Ahluwalia, F. Carpi, “Innovative bioreactor based on dielectric elastomer actuation to dynamically stretch cells in vitro”, *Proc. of EuroEAP 2018 – Eighth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Lyon, France, 5-6 June 2018.
- A69. H. Boys, G. Frediani, M. Ghilardi, S. Poslad, J.C. Busfield, F. Carpi, “Soft wearable non-vibratory tactile displays based on dielectric elastomer actuation”, *Proc. of EuroEAP 2018 – Eighth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Lyon, France, 5-6 June 2018.
- A68. M. Ghilardi, H. Boys, L. Chen, J. Costa, J.C. Busfield, F. Carpi, “Dielectric elastomer-based devices for optics, haptics and tissue engineering”, *Proc. of EuroEAP 2018 – Eighth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Lyon, France, 5-6 June 2018.
- A67. L. Chen, F. Carpi, J. Busfield, “Voltage-induced changes in optical transmission based on dielectric elastomer actuators”, *Proc. of EuroEAP 2018 – Eighth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Lyon, France, 5-6 June 2018.

2017

- A66. G. Frediani, L. Fabbri, M. Rinieri, S. Pancani, F. Vannetti, F. Carpi, “Valutazione degli angoli di giunti articolari utilizzando un trasduttore ad elastomero dielettrico indossabile”, *Proc. of XVIII Congress of the Italian Society of Clinical Movement Analysis (SIAMOC 2017)*, Torino, Italy, 4-7 October 2017.
- A65. G. Frediani, M. Pasquini, F. Gerli, L. Fabbri, S. Pancani, F. Vannetti, F. Carpi, “Human body joint angle monitoring with a wearable dielectric elastomer stretch sensor”, *Proc. of EuroEAP 2017 – Seventh International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Cartagena, Spain, 6-7 June 2017.
- A64. L. Chen, F. Carpi, J. Busfield, “Tunable optical transmission devices based on dielectric elastomer actuators”, *Proc. of EuroEAP 2017 – Seventh International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Cartagena,

Spain, 6-7 June 2017.

- A63. H. Boys, G. Frediani, S. Poslad, J. Busfield, F. Carpi, “Dielectric elastomer actuator-based wearable soft tactile displays with improved design”, *Proc. of EuroEAP 2017 – Seventh International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Cartagena, Spain, 6-7 June 2017.
- A62. M. Ghilardi, H. Boys, J. Busfield, F. Carpi, “Double cone dielectric elastomer actuator-driven positioning system”, *Proc. of EuroEAP 2017 – Seventh International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Cartagena, Spain, 6-7 June 2017.

2016

- A61. M. Ghilardi, F. Carpi, “A simple and compact high voltage breakdown detection system for dielectric elastomer actuators”, *Proc. of EuroEAP 2016 – Sixth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Helsingør (Copenhagen), Denmark, 14-15 June 2016.
- A60. G. Frediani, H. Boys, S. Poslad, F. Carpi, “Enabling wearable soft tactile displays with electroactive smart elastomers”, *Proc. of EuroEAP 2016 – Sixth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Helsingør (Copenhagen), Denmark, 14-15 June 2016.
- A59. L. Calabrese, G. Frediani, N. Pugno, M. Gei, D. De Rossi, F. Carpi, “On the actuation of multi-layer dielectric elastomer actuators interfaced to compressive loads via thick soft membranes”, *Proc. of EuroEAP 2016 – Sixth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Helsingør (Copenhagen), Denmark, 14-15 June 2016.
- A58. M. Ghilardi, L. Maffli, H. Shea, S. Rosset, F. Carpi, “Ultrafast all-polymer electrically tunable silicone lenses”, *Proc. of Photonics 2016 - Fourth International Conference on Photonics, Optics and Laser Technology*, Rome, Italy, 27-29 February 2016.

2015

- A57. B. Chen, M. Stewart, J. Busfield, F. Carpi, "Study on the electric breakdown of dielectric elastomer actuator materials", *Proc. of the 9th European Conference on Constitutive Models for Rubbers (ECCMR 2015)*, Prague, Czech Republic, 1-4 September 2015.
- A56. H. Zahabi, J. Busfield, M. Bennet, F. Carpi, "Dielectric elastomer actuators for colour changing devices", *Proc. of the 9th European Conference on Constitutive Models for Rubbers (ECCMR 2015)*, Prague, Czech Republic, 1-4 September 2015, pp.669-672, 2015.
- A55. D. Cei, G. Gori, C. Curreli, G. Frediani, D. Giacomelli, J. Costa, C. Domenici, F. Carpi, A. Ahluwalia, “EAP actuator as a dynamic in vitro model of the intestinal epithelium”, presented at the international conference *Advances in Cell and Tissue Culture*, Pisa, Italy, 15-17 June 2015.
- A54. M. Ghilardi, A. Bin, F. Carpi, “Engaging the public and the art and design community in EAPs via biomimetic artistic installations”, *Proc. of EuroEAP 2015 – Fifth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Tallinn, Estonia, 9-10 June 2015.
- A53. L. Calabrese, G. Frediani, M. Gei, D. De Rossi, F. Carpi, “Limb compression band made of dielectric elastomer actuators”, *Proc. of EuroEAP 2015 – Fifth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Tallinn, Estonia, 9-10 June 2015.
- A52. G. Gori, D. Cei, C. Curreli, G. Frediani, J. Costa, C. Domenici, A. Ahluwalia, F. Carpi, “EAP actuator as a dynamic in vitro model of the intestinal barrier”, *Proc. of EuroEAP 2015 – Fifth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Tallinn, Estonia, 9-10 June 2015.

- A51. G. Frediani, H. Boys, S. Poslad, F. Carpi, “Wearable system for multi-finger tactile interactions with virtual soft bodies based on dielectric elastomer actuators”, *Proc. of EuroEAP 2015 – Fifth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Tallinn, Estonia, 9-10 June 2015.
- A50. B. Chen, M. Kolloosche, M. Stewart, J. Busfield, F. Carpi, “Investigation on electrical breakdown of dielectric elastomer materials”, *Proc. of EuroEAP 2015 – Fifth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Tallinn, Estonia, 9-10 June 2015.
- A49. B. Chen, M. Kolloosche, M. Stewart, M. Cain, J. Busfield, F. Carpi, “Electric breakdown of dielectric elastomer actuator materials”, *Proc. of IOP Dielectrics 2015*, Teddington, UK, 22-24 April 2015.

2014

- A48. F. Carpi, L. Calabrese, G. Frediani, M. Gei and D. De Rossi, “Limb compression band made of dielectric elastomer actuators”, *Proc. of EAP Workshop 2014*, London, 25-26 November 2014.
- A47. H. Zahabi, M. Bennett, J. Busfield, F. Carpi, “Two-colours switching device using dielectric elastomer actuation”, *Proc. of EAP Workshop 2014*, London, 25-26 November 2014.
- A46. G. Frediani, D. Mazzei, D. De Rossi, F. Carpi, “Finger-tip tactile display based on dielectric elastomer actuators”, *Proc. of EAP Workshop 2014*, London, 25-26 November 2014.
- A45. L. Maffli, S. Rosset, M. Ghilardi, F. Carpi, H. Shea, “Fast and soft tuneable lenses based on dielectric elastomer actuators”, *Proc. of EAP Workshop 2014*, London, 25-26 November 2014.
- A44. B. Chen, M. Kolloosche, M. Stewart, J. Busfield, F. Carpi, “Development of an apparatus to measure the dielectric breakdown strength of elastomers”, *Proc. of EAP Workshop 2014*, London, 25-26 November 2014.
- A43. F. Carpi, G. Frediani, “Electro-responsive elastomeric actuators for biomedical and bioinspired mechatronic systems”, *Proc. of PSE-2014 – First International Conference on Polymer Science and Engineering*, Beijing, China, 10-13 November 2014.
- A42. B. Chen, M. Kolloosche, J. Busfield, F. Carpi, “Soft elastomers for electrically tuneable transducers: the role of dielectric strength”, *Proc. of the 2014 International Rubber Conference (IRC 2014)*, Beijing, China, 16-18 September 2014.
- A41. N. Becerra, M. Tedesco, B. Salis, G. Fredinani, P. Vena, F. Carpi, R. Raiteri, “AFM and fluorescent microscopy of single cells with simultaneous mechanical stimulation via electrically stretchable soft substrates”, *Proc. of GNB 2014 – Fourth Congress of the National Bioengineering Group*, Pavia, Italy, 25-27 June 2014.
- A40. H. Zahabi, M. Bennett, J. Busfield, F. Carpi, “Two-colours switching device using dielectric elastomer actuation”, *Proc. of EuroEAP 2014 – Fourth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Linköping, Sweden, 10-11 June 2014.
- A39. G. Frediani, D. De Rossi, F. Carpi, “Wearable fingertip tactile display for virtual interactions with soft bodies: preliminary psychophysical test”, *Proc. of EuroEAP 2014 – Fourth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Linköping, Sweden, 10-11 June 2014.
- A38. C. A. Hanley, Y. K. Gun’ko, G. Frediani, F. Carpi, “Electrically tuneable fluorescence device based on transparent dielectric elastomer actuators”, *Proc. of EuroEAP 2014 – Fourth International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Linköping, Sweden, 10-11 June 2014.
- A37. H. Zahabi, J. Busfield, F. Carpi, *Proc. of RubberCon 2014: Advanced Engineering and*

Materials Developments, Manchester, UK, 14-15 May 2014.

- A36. G. Frediani, J. Busfield, F. Carpi, “New biomedical and bioinspired mechatronic systems with dielectric elastomer actuators”, *Proc. of RubberCon 2014: Advanced Engineering and Materials Developments*, Manchester, UK, 14-15 May 2014.
- A35. B. Chen, M. Stewart, M. Cain, J. Busfield, F. Carpi, “Study on the Electric Breakdown of Dielectric Elastomer Actuator Materials”, *Proc. of RubberCon 2014: Advanced Engineering and Materials Developments*, Manchester, UK, 14-15 May 2014.
- A34. S. Rosset, L. Maffli, M. Ghilardi, F. Carpi, H. Shea, “Silicone as a multifunctional material: ultrafast tuneable lenses and energy harvesting based on silicone membranes”, *Proc. of 2014 MRS Spring Meeting*, San Francisco, California, USA, 21-25 April 2014.
- A33. R. Raiteri, N. Becerra, M. Tedesco, C. Ward, F. Carpi, G. Frediani, P. Vena, “A novel platform for simultaneous mechanical stimulation and characterization of single cells based on dielectric elastomers and atomic force microscopy”, *Proc. of the 58th Annual Meeting of the Biophysical Society (BSM 2014)*, 15-19 February 2014, San Francisco, USA, *Biophysical Journal*, Vol. 106(2), p798a, 2014.

2013

- A32. G. Frediani, F. Carpi, “Electromechanical characterization of fingertip tactile display based on hydrostatically coupled dielectric elastomer actuators”, *Proc. of EuroEAP 2013 – Third International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Dübendorf (Zürich), Switzerland, 25-26 June 2013.
- A31. C. A. Hanley, G. Frediani, Y. K. Gun’ko, F. Carpi, “Stretchable device with electrically tuneable fluorescence and absorbance via dielectric elastomer actuation”, *Proc. of EuroEAP 2013 – Third International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Dübendorf (Zürich), Switzerland, 25-26 June 2013.
- A30. F. Carpi, M. Gei, “Predictive stress-stretch models of dielectric elastomers up to the characteristic flex”, *Proc. of EuroEAP 2013 – Third International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Dübendorf (Zürich), Switzerland, 25-26 June 2013.
- A29. H. Zahabi, G. Frediani, J. J. C. Busfield, F. Carpi, “Dielectric elastomer actuators for tuneable optics”, *Proc. of 8th European Conference on Constitutive Models for Rubbers (ECCMR VIII)*, San Sebastian, Spain, 25-28 June 2013, pp 697-700, 2013.
- A28. D. Cei, O. Schmid, F. Carpi, A. Ahluwalia, “Development of a physiologically relevant in-vitro lung model”, *Advances in In-Vitro Cell and Tissue Culture conference (Quasi-Vivo 2013)*, Liverpool, 21-22 May 2013.

2012

- A27. F. Carpi, “Assistive technologies 2020: the role of smart materials”, *Horizon 2020 Lecture, Proc. of GNB 2012 – Third Congress of the National Bioengineering Group*, Rome, 26-29 June 2012, pp. 2, 2012.
- A26. F. Carpi, G. Frediani, D. De Rossi, “Innovative assistive technologies based on electromechanically active polymer transducers”, *Proc. of GNB 2012 – Third Congress of the National Bioengineering Group*, Rome, 26-29 June 2012, pp. 2, 2012.
- A25. F. Carpi, G. Frediani, D. De Rossi, “Bioinspired tunable optics for artificial vision systems”, *Proc. of GNB 2012 – Third Congress of the National Bioengineering Group*, Rome, 26-29 June 2012, pp. 2, 2012.
- A24. F. Carpi, G. Frediani, D. De Rossi, “Finger-tip tactile display based on hydrostatically coupled dielectric elastomer actuators for virtual reality systems”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- A23. D. Nemeč, S. Sahakalkan, G. Frediani, I. Kolaric, T. Bauernhansl, F. Carpi, “Carbon

- nanotube based stretchable optically transparent electrodes for dielectric elastomer actuators”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- A22. G. Frediani, M. Zrinyi, F. Carpi, “Electrorotation in uniform electric field of millimeter-sized silicone disks”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- A21. S. Risse, G. Frediani, F. Carpi, “Hydrostatically coupled dielectric elastomer actuators with dipole grafted silicone films”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- A20. G. Frediani, M. Matysek, F. Carpi, D. De Rossi, “Hydrostatically coupled dielectric elastomers actuators with shapes other than circular”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- A19. F. Carpi, G. Frediani, D. De Rossi, “Bioinspired tunable lens made of dielectric elastomer artificial muscles”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- A18. G. T.M. Nguyen, C. Plesse, F. Vidal, G. Frediani, F. Carpi, “Dielectric elastomer actuators from natural rubber”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- A17. M. Ramacciotti, G. Frediani, M. Matysek, B. Leporini, C. Buzzi, F. Carpi, D. De Rossi, “Concept of an add-on tactile display for smart phones as a helping device for blind users”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- A16. M. Ghilardi, G. Kovacs, S. Michel, F. Carpi, “Investigations on a new type of folded dielectric elastomer actuator with structural integrity”, *Proc. of EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.
- 2011**
- A15. F. Carpi, G. Frediani, D. De Rossi, “Bioinspired tunable lens made of elastomeric artificial muscles”, *Proc. of 6th World Congress on Biomimetics, Artificial Muscles and Nano-Bio*, Cergy (Paris), France, 25-27 October 2011.
- A14. F. Carpi, “Electromechanically active polymer artificial muscles for future soft robotics and biomimetics”, *Proc. of Barcelona Cognition, Brain and Technology – BCBT, Summer School 2011 - European coordination action “Convergent Science Network of Biomimetic and Biohybrid Systems*, Barcelona, Spain, 5-16 September 2011.
- A13. G. Gallone, F. Galantini, F. Carpi, “Intrinsic bimorph bending response of a polyurethane dielectric elastomer actuator”, *Proc. of EuroEAP 2011 – First International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Pisa, Italy, 8-9 June 2011.
- A12. F. Galantini, G. Gallone, F. Carpi, “Improving performance of dielectric elastomer actuators via corona charging”, *Proc. of EuroEAP 2011 – First International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Pisa, Italy, 8-9 June 2011.
- A11. F. Carpi, G. Frediani, C. A. Gerboni, J. Gemignani, D. De Rossi, “Towards variable-stiffness dynamic hand splints based on dielectric elastomer transducers”, *Proc. of EuroEAP 2011 – First International conference on Electromechanically Active Polymer*

(EAP) transducers and artificial muscles, Pisa, Italy, 8-9 June 2011.

- A10. F. Carpi, G. Frediani, A. Sommovigo, D. De Rossi, “Refreshable Braille cells based on dielectric elastomer actuators”, *Proc. of EuroEAP 2011 – First International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Pisa, Italy, 8-9 June 2011.

2010

- A9. F. Carpi, G. Frediani, D. De Rossi, “Polymeric haptic displays for force feedback in laparoscopic surgery and vibro-tactile information coding for the blinds”, *Proc. of GNB 2010 – Congress of the National Bioengineering Group*, A. Cappello, T. D’Alessio, M. Knaflitz, F. M. Montevecchi Editors, Patron, pp. 611-612, 2010.

2008

- A8. F. Carpi, R. M. Figliuzzi, S. Migliorini, “Non-invasive contact-less detection of electroretinographic and electrocochleographic potentials”, *Proc. of GNB 2008 – Congress of the National Bioengineering Group*, R. Burattini, R. Contro, P. Dario, L. Landini Editors, Patron, pp. 749-750, 2008.
- A7. F. Carpi, G. Frediani, A. Mannini, G. Gallone, F. Galantini, D. De Rossi, “Artificial muscles based on dielectric elastomer actuators: achievements and challenges”, *Proc. of GNB 2008 – Congress of the National Bioengineering Group*, R. Burattini, R. Contro, P. Dario, L. Landini Editors, Patron, pp. 727-728, 2008.
- A6. G. Tartarisco, G. Gallone, F. Carpi, G. Vozzi, “Composite polyurethane and carbon black bimorph bender microfabricated with pressure assisted microsyringe (PAM) for biomedical applications”, *Proc. of GNB 2008 – Congress of the National Bioengineering Group*, R. Burattini, R. Contro, P. Dario, L. Landini Editors, Patron, pp. 705-706, 2008.

2006

- A5. F. Carpi, C. Menon, D. De Rossi, “Design of novel bio-inspired distributed actuators for space applications”, *Proc. of Third World Congress on Biomimetics, Artificial Muscles and Nano-Bio*, Lausanne, 25-27 May 2006, p. 49.
- A4. F. Carpi, S. Raspopovic, D. De Rossi, “Electrophysiological activation of polymer actuators”, *Proc. of Third World Congress on Biomimetics, Artificial Muscles and Nano-Bio*, Lausanne, 25-27 May 2006, p. 43.
- A3. F. Carpi, G. Pioggia, M. Ferro, D. De Rossi, “Robotic eyes driven by dielectric elastomer actuators”, *Proc. of Third World Congress on Biomimetics, Artificial Muscles and Nano-Bio*, Lausanne, 25-27 May 2006, p. 37.
- A2. G. Pioggia, M. Ferro, M. L. Sica, F. Carpi, A. Ahluwalia, D. De Rossi, “FACET: an android-based therapeutical approach for treatment of autistic disorders”, *Proc. of Third World Congress on Biomimetics, Artificial Muscles and Nano-Bio*, Lausanne, 25-27 May 2006, p. 38.

2004

- A1. D. De Rossi and F. Carpi, “Nanoparticle-loaded polymer sensors and actuators for electronic textiles”, *Present Statuts and Future Potential of Nanotechnologies In The Textile Industry*, Leeds, 30 April 2004, pp. 1-4.

Journal covers

- Cover3. Inside Cover of *Advanced Functional Materials*, Vol. 25, 2015, for the following paper: L. Maffli, S. Rosset, M. Ghilardi, F. Carpi, H. Shea, “Ultrafast all-polymer electrically tuneable silicone lenses”, *Advanced Functional Materials*, pp. 1656–1665.
- Cover2. Inside Cover of *Advanced Functional Materials*, Vol. 21, 2011, for the following paper: F. Carpi, G. Frediani, S. Turco, D. De Rossi, “Bioinspired tunable lens with muscle-like

electroactive elastomers”, *Advanced Functional Materials*, pp. 4152–4158.

- Cover1. Front Cover of *IEEE Transactions on Biomedical Engineering*, Vol. 58(2), 2011, for the following paper: F. Carpi, N. Kastelein, M. Talcott, C. Pappone, "Magnetically controllable gastrointestinal steering of video capsules", pp. 231-234.

Patents

- P7. F. Carpi, G. Frediani, “Sistema di adattamento di impedenza acustica controllabile elettricamente”, *Italian Patent* N. 102018000007696, granted in 2020 (filed in 2018).
- P6. F. Carpi, G. Frediani, “Attuatori, sensori e generatori a polimeri elettroattivi ad accoppiamento idrostatico”, *Italian Patent* N. 0001393153, granted in 2012 (filed in 2008).
- P5. F. Carpi, D. De Rossi, “Attuatore, sensore e generatore a polimeri elettroattivi in configurazione ripiegata”, *Italian Patent* N. 0001359004, granted in 2012 (filed in 2005).
- P4. F. Carpi, A. Carpi, “Uso di sistemi di navigazione magnetica di cateteri nell’apparato cardiovascolare per un controllo magnetico della movimentazione di capsule endoscopiche nel tubo digerente”, *Italian Patent* N. 0001358976, granted in 2009 (filed in 2005).
- P3. F. Carpi, A. Carpi, “Sistema per la movimentazione magnetica di una capsula endoscopica”, *Italian Patent* N. 0001358850, granted in 2009 (filed in 2005).
- P2. F. Carpi, F. Tomei, “Sistema per la rilevazione non invasiva di segnali elettoretinografici”, *Italian Patent* N. 0001358966, granted in 2009 (filed in 2005).
- P1. F. Carpi, D. De Rossi, “Attuatore elettromeccanico contrattile a polimero elettroattivo con elettrodi deformabili elicoidali”, *Italian Patent* N. 0001346852, granted in 2008 (filed in 2003).

Awards, Prizes and Honours

- 2023: *EuroEAP 2023 Society Challenge Award (1st classified)* for the work “3D soft touch pad enabled by vision-based mechanochromic sensing” by G. Sasso, R. R. Ramirez Herrera, Y. Sun, J. Busfield and F. Carpi, presented at EuroEAP 2023 – 11th International Conference on Soft Transducers and Electromechanically Active Polymers, Bristol, United Kingdom, 6-8 June 2023.
- 2019: *Best Presentation Award*, IRCO - International Rubber Conference Organisation, for the work “Changes in optical transparency of a soft membrane using a dielectric elastomer actuator” by L. Chen, M. Ghilardi, F. Carpi and J.J.C. Busfield, presented at IRC 2019 – International Rubber Conference, London, UK, 3-5 September 2019.
- 2017: *EuroEAP 2017 Society Challenge Award (2nd classified)* for the work “Double cone dielectric elastomer actuator-driven positioning system” by M. Ghilardi, H. Boys, J. Busfield and F. Carpi, presented at EuroEAP 2017 – Seventh International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles, Cartagena, Spain, 6-7 June 2017.
- 2016: *Best Poster Award (2nd classified)*, EuroEAP Society for the work "Enabling wearable soft tactile displays with dielectric elastomer actuators" by G. Frediani, H. Boys, S. Poslad and F. Carpi, presented at EuroEAP 2016 – Sixth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles, Helsingør (Copenhagen), Denmark, 14-15 June 2016.
- 2016: *Visiting Professor (2016-2019)*, Queen Mary University of London, UK.
- 2015: *Best Poster Prize*, CellTox - Associazione Italiana Tossicologia In Vitro, for the work: D. Cei, G. Gori, C. Curreli, G. Frediani, D. Giacomelli, J. Costa, C. Domenici, F. Carpi, A. Ahluwalia, “EAP actuator as a dynamic in vitro model of the intestinal epithelium”, presented at the international conference Advances in Cell and Tissue Culture, Pisa, Italy, 15-17 June 2015.
- 2015: *Faculty of 1000 Poster Prize*, "Faculty of 1000" (<https://f1000.com>), for the work: D. Cei, G. Gori, C. Curreli, G. Frediani, D. Giacomelli, J. Costa, C. Domenici, F. Carpi, A. Ahluwalia, “EAP actuator as a dynamic in vitro model of the intestinal epithelium”, presented at the international conference Advances in Cell and Tissue Culture, Pisa, Italy, 15-17 June 2015.

- 2015: *Highlights of 2015, Smart Materials and Structures journal*, for the paper “Standards for dielectric elastomer transducers”, on the basis of “referee endorsement, novelty and scientific impact”. The paper is the result of a multicentre work (involving 18 institutions from 9 countries) that has set the world-first standards in the field of electromechanically active polymer transducers.
- 2014: *Adjunct Professor*, Beijing University of Chemical Technology, Beijing, China, 12 November 2014.
- 2013: *Elected President*, European Society for Electromechanically Active Polymer Transducers and Artificial Muscles (EuroEAP), Zurich, Switzerland, 27 June 2013.
- 2012: *Invited (upon competitive selection) for a Horizon 2020 Lecture* at GNB 2012 – Third Congress of the National Bioengineering Group, Rome, 26-29 June 2012 (Title of the Lecture: “Assistive technologies 2020: the role of smart materials”).
- 2011: *Conference Grant for European Early Stage Researchers, European Science Foundation*, Belgium, to present a paper at the conference “Electroactive Polymer Actuators and Devices (EAPAD) XIII”, San Diego, 7-10 March 2011.
- 2010: *Winner of 2010 Applied Innovation Contest*, PolyPower, Denmark. Team leader, 7 February 2011.
- 2008: *Spontaneous Modelling from the company ANSYS, Inc.* of a device designed by Prof. Carpi (contractile folded actuator based on dielectric elastomers), as an example to demonstrate the electroelastic modelling capabilities of the ANSYS Multiphysics software.
- 2005: *Vespucci Award, Regional Council of Tuscany*, Italy, for the following patent: F. Carpi, A. Carpi, “Sistema per la movimentazione magnetica di una capsula endoscopica”, Italian Patent N. 0001358850, 2005

INSTITUTIONAL AND PROFESSIONAL ACTIVITIES

Institutional Responsibilities

- 2021–pres.: *Director*, MSc Programme in Biomedical Engineering, Univ. of Florence, Italy.
- 2021–pres.: *Board Member*, School of Engineering, Univ. of Florence, Italy.
- 2021–pres.: *Responsible*, “Rehabilitation Bioengineering” section, Rehabilitation Centre, Don Carlo Gnocchi Foundation, Florence, Italy.
- 2017–pres.: *Board Member*, PhD Programme in Industrial Engineering, Univ. of Florence, Italy.
- 2017: *Examination Committee Member*, National Habilitation for Engineers, Univ. of Florence, Italy.
- 2016–pres.: *Examination Committee Member*, Master and Bachelor theses at the School of Engineering, Univ. of Florence, Italy.
- 2016–2020: *Graduate Student Advisor*, Biomedical Engineering, Univ. of Florence, Italy.
- 2014–2016: *Director*, MSc Programmes in Biomedical Engineering (including MSc in Biomedical Engineering and MSc in Medical Electronics and Physics), Queen Mary University of London, School of Engineering and Materials Science, London, UK.
- 2013–2014: *Director*, MSc Programme in Medical Electronics and Physics, Queen Mary University of London, School of Engineering and Materials Science, London, UK.

Reviewer and Selection Committee Member for Academic/Research Positions

- 2022: *Reviewer*, promotion to Associate Professor, School of Engineering, University of Bristol, UK.
- 2022: *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, Scuola Superiore Sant'Anna, Pisa.
- 2021: *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, University of Pisa.
- 2021: *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, University of Florence.
- 2020: *Reviewer*, selection of Director of Max Planck Institute for Intelligent Systems, Stuttgart, Germany.
- 2019: *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, Scuola Superiore Sant'Anna, Pisa.

- 2018: *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, Scuola Superiore Sant'Anna, Pisa.
- 2015: *Selection Committee Member*, selection of an Associate Professor in Applied Mathematics and Control, Mads Clausen Institute, University of Southern Denmark, Denmark.
- 2014: *Selection Committee Member*, selection of an Associate Professor in Industrial Bioengineering, Scuola Superiore Sant'Anna, Pisa.
- 2014: *Reviewer*, promotion to Full Professorship, School of Engineering and Applied Science, University of California at Los Angeles, USA.
- 2013: *Reviewer*, promotion to Readership, School of Engineering, University of Bristol, UK.

Reviewer and Expert Panel Member of Research Projects for the European Commission, National Agencies and Foundations

2023

- *Natural Sciences and Engineering Research Council of Canada*, Canada, June 2023.
- *Swiss National Science Foundation (SNSF)*, Switzerland, June 2023.
- *Estonian Research Council* (Reviewer and Expert Panel Member), June 2023.

2022

- *Swiss National Science Foundation (SNSF)*, BRIDGE Discovery Funding program, Switzerland, June 2022.
- *Young Researchers Programme "Rita Levi Montalcini"*, Italy, April 2022.
- *Estonian Research Council* (Reviewer and Expert Panel Member), February 2022.

2021

- *Estonian Research Council*, June 2021.

2020

- *Swiss National Science Foundation (SNSF)*, Div. Mathematics, Physical and Engineering Sciences, December 2020.

2017

- *Swiss National Science Foundation (SNSF)*, *Sinergia funding*, August 2017.

2016

- *UK-India Education and Research Initiative (UKIERI)*, November 2016.
- *European Research Council (ERC)*, *Starting Grant, 2016 call*, April 2016.
- *Nanyang Technological University, Singapore*, April 2016.

2015

- *Swiss National Science Foundation (SNSF)*, Div. Mathematics, Physical and Engineering Sciences, May 2015.
- *The Danish Council for Independent Research, Technology and Production Sciences (DFF)*, April 2015.
- *Swiss National Science Foundation (SNSF)*, March 2015.
- *Qatar National Research Fund (QNRF)*, *8th cycle of the National Priorities Research Program (NPRP)*, February 2015.

2014

- *Canadian Institutes of Health Research (CIHR), Collaborative Health Research Projects - NSERC (the Natural Sciences and Engineering Research Council of Canada), Partnered Committee, November 2014.*
- *NSERC (the Natural Sciences and Engineering Research Council of Canada), Collaborative Research and Development (CRD), November 2014.*
- *COST (European Cooperation in Science and Technology) Action Trans Domain Proposals, June 2014.*

2013

- *Qatar National Research Fund, May 2013.*
- *Israel Science Foundation, April 2013.*
- *Agence Nationale de la Recherche – Blanc programme, France, April 2013.*
- *The Broad Foundation, Broad Medical Research Program Inflammatory Bowel Disease Grants, USA, March 2013.*

2012

- *Portuguese Foundation for Science and Technology, August 2012.*
- *New Zealand Ministry of Business, Innovation and Employment (previously the Ministry of Science and Innovation) - strategic investment plan (SIP), July 2012.*
- *Indo Swiss Joint Research Programme - PEP30, May 2012.*
- *Romanian Research Council, May 2012.*
- *Swiss National Science Foundation, April 2012.*
- *Agence Nationale de la Recherche – Blanc programme, Second project proposal, France, February 2012.*
- *Agence Nationale de la Recherche – Blanc programme, First project proposal, France, February 2012.*

2011

- *Estonian Science Foundation - Programme Mobilitas, December 2011.*
- *European Commission – Marie Curie Fellowships (registration reference number 188978), August 2011.*
- *Agence Nationale de la Recherche – Département programmes non thématiques (programme ANR-DFG Chemistry 2011), France, July 2011.*
- *European Commission – Information Society and Media – Future and Emerging Technologies (appointment letter AL00067094), January 2011.*

2010

- *Swiss National Science Foundation - Div. Mathematics, Physical and Engineering Sciences, December 2010.*

Member of PhD Evaluation Committees

Invited Member of the PhD evaluation Committees of the following PhD graduation theses:

- N. Zamperlin, University of Trento, Italy, July 2023.
- J. Ashby, The University of Auckland, New Zealand, June 2022.
- F. Beco Albuquerque, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, April 2022.

- M. Carricato, University of Bologna, Italy, January 2022.
- S. R. Krupp, Nanyang Technological University, Singapore, November 2021.
- A. Iannarelli, Delft University of Technology, The Netherlands, January 2021.
- C. J. Richards, University of Wollongong, Australia, October 2020.
- R. Diteesawat, University of Bristol, UK, defence in July 2020.
- A. Ankit, Nanyang Technological University, School of Material Science and Engineering Singapore, defence in November 2019.
- S. Pourazadi, Simon Fraser University, School of Engineering Science, Canada, defence in November 2019.
- J. Costa, University of Pisa, Centro 'E Piaggio', Italy, defence in November 2018.
- M. Pieroni, University of Pisa, Centro 'E Piaggio', Italy, defence in September 2017.
- A. Razak, Technical University of Denmark, The Danish Polymer Centre, Denmark, defence in April 2017.
- La T. Giang, Nanyang Technological University, School of Mechanical and Aerospace Engineering, Singapore, defence in 2015.
- A. Bowers, University of Bristol, Bristol Robotics Laboratory, UK, defence in 2015.
- L. S. Hsien, Nanyang Technological University, School of Mechanical and Aerospace Engineering, Singapore, defence in 2015.
- L. Maffli, EPFL - École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, defence in August 2014.
- S. Risse, University of Potsdam, Faculty of Science, Potsdam, Germany, defence in July 2013.
- S. Akbari, EPFL - École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, defence in March 2013.
- G. Ouyang, Vestfold University College, Institute for Microsystems Technology, Norway, defence in September 2012.

TEACHING

Academic years from 2016/17 onwards:

MSc Programme in Biomedical Engineering, University of Florence, Italy:

- *Module Organiser of 'Fundamentals of Bioelectricity for Prosthetic and Diagnostic Systems'*;
- *Module Organiser of 'Biomaterials and Biological Tissues Engineering'*.

Academic years from 2013/14 to 2015/16:

Bachelor Programme in Biomedical Engineering, Queen Mary University of London, School of Engineering and Materials Science, UK:

- *Module Organiser of 'Neuromuscular Bioelectricity and Biomechanics'*;
- *Module Deputy Organiser of 'Engineering Instrumentation'*.

MSc Programme in Medical Electronics and Physics, Queen Mary University of London, School of Engineering and Materials Science, UK:

- *Module Organiser of 'Radiation Physics and Lasers'*;
- *Module Organiser of 'Ultrasound and Imaging'*;
- *Module Organiser of 'Digital Electronics'*.

Academic year 2012/13:

Bachelor Programme in Biomedical Engineering, Queen Mary University of London, School of Engineering and Materials Science, UK:

- *Module Organiser of 'Neuromuscular Biomechanics';*
- *Module Deputy Organiser of 'Engineering Instrumentation'.*

Academic years from 2007/08 to 2011/12:

Bachelor Programme in Biomedical Engineering, School of Engineering, University of Pisa, Italy:

- *Module Deputy Organiser of 'Bioelectric Phenomena'.*

Academic year 2006/07:

Bachelor Programme in Biomedical Engineering, School of Engineering, University of Pisa, Italy:

- *Module Organiser (as a Contract Professor) of 'Bioelectric Phenomena'.*

Academic years from 2002/03 to 2005/06:

Bachelor Programme in Biomedical Engineering, School of Engineering, University of Pisa, Italy:

- *Module Deputy Organiser of 'Bioelectric Phenomena'.*