Curriculum Vitae Europass

Personal Information

Surname/Name	**GERBALDI Claudio**
Address	[redacted]
Phone	[redacted]
Fax	
E-mail	[redacted]
Citizenship	Italian
Date of birth	[redacted]
Sex	[redacted]

Professional experience

Date	2019 – present
Work	Full Professor of Chemistry for Applied Technologies
Main responsibilities	Research: LEADER of the Group for Applied Materials and Electrochemistry (GAME Lab), at the Department of Applied Science and Technology, coordinating the activity of 5 staff people, 6 Ph.D.s and 5-7 Bachelor/Master Degree students per year (see details in appendix below). The GAME Lab focuses its research activity on the development of innovative electrode/electrolyte materials (chiefly, synthesis, structural-morphological and electrochemical characterization of advanced polymer electrolyte membranes by light-induced and thermal polymerisation, meso-/nano-structured electrode materials, and water-based production techniques for recyclable electrodes exploiting natural cellulose fibres) for energy storage, production and conversion devices (chiefly Li-/Na-based secondary batteries, third generation solar cells, including dye-sensitized and perovskite solar cells, and photoelectrochromics), with strong collaboration with academy/research centers worldwide (e.g., ENEA, CNR, IIT, CNRS, MIT, EPFL) and effective connections with industry (e.g., Toyota Motor Europe, Solvay, ENI) and EU (3 EU H2020 projects, 1 PRIN and 1 Marie Curie European Training Network ongoing). Teaching: Professor, Chair of Chemistry (avg. 450 students per class); Professor of Organic Chemistry (avg. 120 students).
Name and address of the employer	Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 – Torino (TO), Italy
Activity/sector	High education, MIUR Sector CHIM/07 - Principles of chemistry for applied technologies

Date	2014 - 2019
Work	Associate Professor of Chemistry
Main responsibilities	Research: LEADER of the GAME Lab group, at the Department of Applied Science and Technology, focused on the development of innovative electrode/electrolyte materials for energy storage, production and conversion devices. Teaching: Professor, Chair of Chemistry (2 classes/year, avg. 420 students per class).
Name and address of the employer	Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 – Torino (TO), Italy
Activity/sector	High education, MIUR Sector CHIM/07 - Principles of chemistry for applied technologies

Date	2011 - 2014
Work	Assistant Professor, Researcher RTi
Main responsibilities	Research: scientific responsible/coordinator of the research activity on energy storage (mainly, Li-/Na-based batteries) and conversion (mainly, dye-sensitized and perovskite solar cells) devices, with particular focus onto the synthesis/preparation, structural-morphological and electrochemical characterization of nanostructured electrode materials, bioinspired components and innovative polymer electrolytes. Teaching: Professor, Chair of Chemistry (avg. 420 students).
Name and address of the employer	Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 – Torino (TO), Italy
Activity/sector	High education, MIUR Sector CHIM/07 - Principles of chemistry for applied technologies

Date	2010 - 2011
Work	Senior Post-Doc Researcher
Main responsibilities	Research, Team leader
Name and address of the employer	CSHR@POLITO, Italian Institute of Technology – IIT, Via Morego 30, 16163 - Genova (GE), Italy
Activity/sector	Coordinating the research activity in the development of innovative systems for energy storage (e.g., lithium cells and thin and flexible capacitors with nanostructured electrodes and polymer electrolytes).

Date	2006 - 2009
Work	Post-Doc Researcher
Main responsibilities	Research, support teaching activities (class/Lab practical exercises, tutoring, co-chairing)
Name and address of the employer	Politecnico di Torino, Corso Duca degli Abruzzi 24, 10129 – Torino (TO), Italy
Activity/Sector	Development of Li-based cells with nanostructured electrodes and polymer electrolyte their assembly and electrochemical testing in laboratory-scale devices.

Education and training

Date	2006
Title	Ph.D. in Materials Science and Technology
Expertise/experience	Research activity focused on synthesis and characterization of mesoporous materials and nanostructured materials as cathodes for secondary Li-ion batteries, energy storage/conversion device assembly, electrochemistry
Name of the Institution	Politecnico di Torino
International level	III level

Date	2002
Title	Master Degree in Chemistry
Expertise/experience	Research Thesis on structural/morphological characterisation of mesoporous/nanostructured catalysts
Name of the Institution	University of Torino
International level	II level

Expertise/experience

Mother tongue **Italian**

Other

Self evaluation	**Comprehension**		**Speaking**		**Written**
European level (*)	Listen	Reading	Oral interaction	Oral production	
English	B2	C1	B2	B2	C1

(*) European reference scheme

Social skills and competences	Team work: I have been involved in various teams along the years, from young researcher to team leader of a research group. I also worked several months abroad Italy keeping good relationship with hosts and international research groups.
Organizational skills	As a scientific and technical coordinator of competitive National and International research projects, awarded through a peer-review process, and Research Projects/Contracts ruled through partnership agreements with companies and/or public private bodies, I matured an excellent organizational/coordinating experience.
Technical skills and competences	see details in appendix A below
Computer skills and competences	Advanced use of Office tools and other scientific softwares (Origin).
Artistic skills	
Other skills and competences	Fishing, Sports (Tennis, Football, Cycling, Ski)
Driving license	Italian driving license (cat. B)
Further information	ORCID 0000-0002-8084-0143 RESEARCHER ID A-5377-2011 https://www.facebook.com/GAMELabPoliTO https://twitter.com/GamelabG http://www.disat.polito.it/
Attached	None

FELLOWSHIPS AND AWARDS

2018	Short-term visiting scientist in the group of Prof. Andrea C. Ferrari, leader of the EU graphene flagship at the Cambridge Graphene Centre, Engineering Department, University of Cambridge, UK.
2018	National Scientific Qualification ("Abilitazione Scientifica Nazionale") as Full Professor in the following Academic Recruitment Fields ("Settore Concorsuale"), 03/B2 – Fondamenti chimici delle tecnologie, 03/A2 – Modelli e metodologie per le scienze chimiche, and 03/C2 – Chimica Industriale
2017	Short-term visiting scientist at the University of Wien, Department of Inorganic Chemistry - Functional materials, in the group of Prof. Dr. Freddy Kleitz.
2017	Short-term visiting scientist at the Hunter College and CUNY Graduate Center, The City University of New York (US), in the group of Prof. Steven G. Greenbaum.
2017-2019	Affiliate researcher at the CSF@POLITO Center for Sustainable Futures in Torino of the Italian Institute of Technology.
2015	International "Roberto Piontelli" Award – International award assigned biannuary by The Accademia dei Lincei, delivered in the presence of the President of the Italian Republic, for outstanding scientific or technological contributions in the field of electrochemistry for energy-related applications, corrosion or physical chemistry.
2015	Short-term visiting scientist at MIT - Massachusetts Inst. Tech. (US), in the group of Prof. Mircea Dinca.
2011-2014	Affiliated/External Collaborator at the CSHR - Center for Human Space Robotics @POLITO of the Italian Institute of Technology (IIT).
2010	Prix des Techniques Innovantes pour l'Environnement 2012, assigned by Info Chimie Magazine and ADEME (French Society for Environment and Energy Management) for the high impact of the paper-based battery presented in *J. Mater. Chem.* 20 (2010) 7344.
2007	UniCredit Award - Innovation in Research for the best Ph.D. Thesis defended in Torino in 2006, promoted by UniCredit Group with Unione Industriale di Torino, Politecnico and University of Torino and National Research Council.
2004	Visiting Scientist at Institut de Recherce sur la Catalyse (IRC-CNRS), Lione (France), in the group of Prof. Alain Tuel.
2004	Visiting Scientist at the LABFC - Laboratory for Advanced batteries and Fuel Cells of Prof. Bruno Scrosati, University "La Sapienza" Rome, Italy.

RESEARCH ACTIVITIES

Over the years, the scientific activity of Prof. Claudio Gerbaldi has been focused on various research topics in the field of physical chemistry, catalysis, materials science, electrochemistry and its applications, particularly related to the preparation, study and structural-morphological and electrochemical characterization of nanostructured electrode materials and innovative polymer electrolytes for energy storage, production and conversion devices such as, among others, lithium-/sodium-ion batteries, fuel cells and, more recently, third generation dye-sensitized solar cells (DSSC) and perovskite solar cells, photoelectrochromic devices and integrated DSSC-EDLC (Electrochemical Double-Layer Capacitors). In this context, the research has been targeted at the study and development of innovative materials having high performance and low environmental impact through the use and optimization of original preparation procedures, clean, simple, low cost and easily scalable to an industrial level. Prof. Gerbaldi is the leader of the Group for Applied Materials and Electrochemistry (see the GAME Lab Facebook page in which the results of the group are timely updated - https://it-it.facebook.com/GAMELabPoliTO/) at the Department of Applied Science and Technology (DISAT) of the Politecnico di Torino, composed, at present, of 1 Assistant Professor RTD-A, 1 Graduated Technician, 3 Post-Docs, 1 Graduated Fellow, 3 Ph.D. Students and several Bachelor/Master Degree Thesis students.
The specific mission of GAME Lab is the development and thorough characterization of innovative electrochemical energy conversion and storage systems, which are nowadays fundamental to exploit the full potential of future technologies requiring high performance, such as smart electronics, storage from renewables and electric transportation. Interests and skills of GAME Lab include the development of environmentally friendly materials (nanostructured electrodes and safe polymer electrolytes), along with their thorough physico-chemical and electrochemical characterisation, and innovative technologies for high-performance, lightweight and low cost devices, such as Li-/Na-based secondary batteries, Li-sulfur cells, next-generation photovoltaic devices (dye sensitized - DSSC and perovskite solar cells) and photoelectrochromic devices, with strong collaboration with academy/research centers worldwide and effective connections with industry and EU. GAME Lab facilities can be found here: http://www.disat.polito.it/the_department/internal_structures/department_labs/laboratori_area_chimica_per_l_ingegneria/game_laboratory).

TEACHING/MENTORING ACTIVITIES

2020 – to date. Teaching professor of Organic Chemistry at the I Faculty of the Politecnico di Torino from seven years.

2011 – to date. Teaching professor (Chair of Chemistry, two classes) at the I Faculty of the Politecnico di Torino from seven years. He also lent support activities for several years (e.g., practical exercises in the classroom and in the laboratory, tutoring, co-chairing).

2013 – Lecturer and Laboratory Instructor at the PhD-School "Energy and Sensors", organized by the Italian Chemical Society at the University of Pavia from September 18-21, 2013.

2007 – to date. Supervisor of PostDocs (7), PhDs (8), Bachelor & Master (BSc, MSc, 35 Total) degree students in the development of their Experimental Thesis.

ORGANISATION OF SCIENTIFIC MEETINGS

- Member of the Organising Committee of the ISE 2024 Topical Meeting, to be held in Stresa, 9-12 June 2024.
- Member of the Scientific Committee of the 21st Italian Electrochemical Meeting "Giornate dell'Elettrochimica Italiana - GEI 2019", held in Padova, Italy on September 8-12, 2019.
- Member of the Scientific and Organising Committees of the International Spring School of Electrochemistry (ISSE 2019 – 1st Ed.) - Smart Materials For and From Electrochemistry, held on May 19-23, 2019 in Castellammare del Golfo (TP).
- Principal Organiser, Chair of the GEI 2018, Conference – Italian Electrochemistry Days, which has been held in Sestriere, 21- 25 January 2018 (also member of the Organising committee and of the Scientific Committee).
- Symposium Organiser of Symposium 6 "Batteries into the Future: from Advanced Lithium-Ion Systems to Novel Chemistries and Architectures" of the ISE 2018 – 69th Annual meeting of the International Society of Electrochemistry, 2 - 7 September 2018 Bologna, Italy.
- Member of the Organising Committee of the XXXIX Meeting of the Electrochemistry Group of the Spanish Royal Society of Chemistry and 3rd E3 Mediterranean Symposium: Electrochemistry for Environment and Energy (XXXIX GE-RSEQ & 3rd E3-MS), 2 - 5 July 2018, University Complutense of Madrid, Spain.
- Member of the Scientific Committee of the 2018 E-MRS Fall Meeting and Exhibit, 17 - 20 September 2018 Warsaw University of Technology.

COMMISSIONS OF TRUST

2020 – present	Newly appointed member of the Editorial Board Member of the new multi-disciplinary journal "Materials Today Energy", Elsevier.
2018 – present	Newly appointed member of the Editorial Board Member of the new multi-disciplinary journal "Materials Today Sustainability", Elsevier.
2018 – present	Editorial Board Member of the international ISI journal "Polymers" (MDPI, eISSN 2073-4360, I.F. 3.164 source ISI Web of Knowledge, Journal Citation Reports®, Thompson Reuters, data updated to 10/10/2019).).
2017 – present	Elected Member of the Governing Board of the Electrochemistry Division of the Italian Chemical Society, in charge for the years 2017-2019.
2016 – present	Project evaluator, Competitive Research Grants (CRG) program at King Abdullah University of Science and Technology (KAUST).
2015 – present	Project evaluator for Swiss Federal Science Foundation SNSF.
2015 – present	Associate Editor, "Batteries" (MDPI AG).
2014 – present	Review Editor, "Frontiers in Energy Storage" (Frontiers Media S.A.).
2011 – present	Reviewer of PhD Thesis for National and International Universities (12 total).
2006 – present	Reviewer: Nature Energy, Energy & Environmental Science, Advanced Energy Materials, ChemSusChem, Journal of Power Sources, Electrochimica Acta, Journal of Materials Chemistry, ACS Applied Materials & Interfaces, ACS Energy Letters, Scientific Reports, Applied Energy.

Guest Editor of the Special Issue "Electrode Materials" in the open access international ISI journal "Materials" (ISSN 1996-1944, I.F. 2.972 source ISI Web of Knowledge, Journal Citation Reports®, Thompson Reuters, data updated to 10/10/2019, http://www.mdpi.com/journal/materials/special_issues/Electrode-Materials).

Guest Editor of the Special "Virtual" Special Issue of ELECTROCHIMICA ACTA entitled Sustainable Electrochemistry: Functional Applied Materials and Techniques for Energy Devices and Sensing, which "captured" timely, a high quality selection of the scientific contributions presented during the Giornate dell'elettrochimica italiana - GEI 2018 Conference, held in Sestriere (21 - 25 January 2018), Torino – Italy.

Guest Editor of the special collection for ChemElectroChem dedicated to GEI2019, the annual meeting of the Electrochemical Division of the Italian Chemical Society, held Padova September 2019.

Co-guest Editor of the Special Issue "Application of Polymers in (Photo)electrochemical Devices: From Solar Cells to Batteries" in the open access international ISI journal "Polymers" (MDPI, ISSN 2073-4360, https://www.mdpi.com/journal/polymers/special_issues/Polymers_Photoelectrochemical_Devices).

Significant reviewing experience for top tier journals: Nature Group (Nat. Mat., Nat. Comm.), Wiley (Adv. En. Mater., Adv. Funct. Mater.), RSC (En. Environ. Sci., J. Mater. Chem.), ACS (ACS Appl. En. Lett., ACS Appl. En. Mater.), Elsevier (J. Power Sources, Electrochim. Acta)

INSTITUTIONAL RESPONSIBILITIES

2022 - Chair of the INSTM National Reference Center for Electrochemical Energy Storage (GISEL)

2021 - President of Evaluation Committee for Full Prof. CHIM/07, DISAT-POLITO

2019 - Member of DISAT Research and Technology Transfer Committees

2017 - Elected member of the Governing Board of the Electrochemistry Division of SCI, in charge for years 2017-19 and re-elected for 2020-22

2012 - DISAT commission aimed at evaluation of the Quality of Research (VQR ANVUR)

2011 - Member of PhD Committee in Materials Science and Technology, Politecnico di Torino

2011 - Member of boards of regents in Energetic Eng and Chem Eng, Politecnico di Torino

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

Italian Chemical Society (SCI, since 2002), International Society of Electrochemistry (ISE, since 2014), Italian Association of Chemical Engineering (AICING, AIDIC, since 2013).

MAJOR INTERNATIONAL COLLABORATIONS

Shahzada Ahmad (Abengoa, Spain): polymer electrolytes and novel nanostructured $LiFePO_4$.
Andrea Balducci (University of Jena, Germany): protic ionic liquids and their use in batteries.
Davide Beneventi (CNRS-INP, France): papermaking of electrodes, paper-based batteries.
Daniel Brandell, Kristina Edstrom (Uppsala University): organic electrodes for Na-ion batteries.
Mircea Dincă (MIT, USA): metal organic frameworks for energy storage and conversion.
Robert Dominko (National Chemistry Institute, Slovenia): lithium metal batteries.
Michael Hayes (Tyndall National Institute, Ireland): Li-ion cells powering the IoT.
Michael Grätzel, Anders Hagfeldt (EPFL, Switzerland): aqueous electrolytes for DSSC, perovskite solar cells.
Steven G. Greenbaum (The City University of New York): polymer electrolytes and NMR analysis.
Freddy Kleitz (UNIWIEN, Austria): mesoporous and nanostructured metal oxide anodes.
George Leftheriotis (University of Patras, Greece): photoelectrochromics.
Joachim Maier (Max Planck Institute, Germany): soggy-sand highly conductive electrolytes.
David Mecerreyes (POLYMAT, Spain): poly(ionic liquids) as electrolytes for Li/Na-based batteries.
Stefano Passerini (HIU-KIT, Germany): high-voltage cathodes, polymer electrolytes and RTILs.
Kevin M. Ryan (University of Limerick, Ireland): Li-ion cells with nanostructured silicon electrodes and polymer electrolytes.
Raphael Salòt (CEA Grenoble, France): polymer electrolytes and Raman analysis.
Ulrich S. Schubert, Andrea Balducci (University of Jena, Germany): protic ionic liquids for Li-ion cells and supercapacitors.
Alexander S. Shaplov (LIST, Luxembourg): single-ion conductors polymer electrolytes and poly(ionic liquid)s.
Arul Manuel Stephan (CSIR-CECRI, India): inorganic fillers for highly conductive solid electrolytes.
Jean-Marie Tarascon (College de France, Paris): sodium ion batteries and related materials.
José Louis Tirado (University of Córdoba, Spain): composite electrodes for Li batteries.
Alain Tuel (IRCELYON, France): mesoporous and nanostructured electrode materials.

INVITED TALKS/SEMINARS

- "Novel Nanostructured Materials For Energy Production And Storage Systems", invited talk at Nanoforum in the session Nanotechnology For Energy 2 (VI Edition, Micro and nanotechnologies: where the research meets business, Torino, June 16-17, 2010).
- “Innovative photocured polymer electrolyte membranes for efficient energy storage and conversion systems”, invited talk at the 8th German-Italian-Japanese Meeting of Electrochemists, December 2 - 4, 2016, Kazusa Arc, Chiba, Japan.
- “Nano and biosourced electrode/electrolyte components for next-gen energy storage and conversion devices”, invited lecture in the scientific symposium “Bio- and nano-materials for Energy” of the MoDeSt Workshop “Nanomaterials and Bio materials for the next Decade” held in Pantelleria Island (Italy), 5-7 July 2017.
- “Towards solid-state batteries operating at room temperature: (composite) polymer electrolytes in a crosslinked PEO matrix”, invited oral at the E-MRS Fall Meeting held in Warsaw, 17-20 September 2018.
- “Towards Solid Batteries Operating at Ambient Temperature Exploiting Highly-Crosslinked (Composite) PEO-based Polymer Electrolytes”, invited lecture at the Nanoinnovation 2018 Conference&Exhibition held in Rome, 11-14 September 2018.
- Invited Keynote Lecturer at the 10th International ECNP Conference on NANOSTRUCTURED POLYMERS AND NANOCOMPOSITES (10th ECNP 2018), organized by the CSIC (Madrid), POLYMAT (San Sebastian) and ECNP that took place between 3th and 5th of October, 2018 in the Palacio Miramar in San Sebastian, Spain.
- Invited Keynote Lecturer at the European Polymer Congress 2019 (EPF 2019) held at the Creta Maris Convention Center & Beach Resort in Hersonissos Heraklion Crete, Greece on June 9-14, 2019.
- Invited Keynote Lecture “Hybrid polymer electrolytes based on UV cross-linked polymer matrixes for solid-state batteries operating at ambient temperature”, at the International Conference “Towards Futuristic Energy Storage: paving its way through Supercapacitors, Li-ion batteries and beyond” to be held in Tours, France on January 22-24, 2020.
- Invited Plenary Lecture ““New trends in electrolyte materials for solid batteries operating at ambient temperature” at the International Conference on Renewable Energies and Power Quality (ICREPQ'20) to be held in Granada, Spain on April 1-3, 2020.
- Invited Keynote Lecture “An Overview on crosslinked (hybrid) Polymer Electrolytes for Next-Generation Solid-State Batteries operating at ambient temperature”, at the International Conference GEP-SLAP2020-21, May 9-13, San Sebastian/SP.
- Invited Keynote Lecture “An Overview on Hybrid Polymer Electrolytes for Next-Gen Solid-State Batteries Operating at Ambient Temperature”, at the International Conference ENERSTOCK 2021 “Towards Smarter Solutions“, June 9-11, Ljubljana, Slovenia.
- Invited Oral at the International Conference 14th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 14), December 12–17, Vancouver, Canada.
- Invited Keynote Lecturer the international conference Polymers 2022: New Trends in Polymers Science: Health of the Planet, Health of the People, to be held in Turin, Italy, on May 25–27, 2022.

<u>Other invited talks/seminars and/or invitations worth to be noticed:</u>

- 2021 – Invited seminar "Electrochemical Energy Storage Systems: Present Advances and Future Challenges" in the framework of the *1st Unite! Spring School*, May 17th 2021 at the Politecnico di Torino.
- 2018 - Invited seminar "New Trends in Energy Storage Materials", March 16, 2018 at the Cambridge Graphene Center (UK).
- 2017 - Invited seminar "New trends in energy storage materials @PoliTO", December 1, 2017 at the University of Wien, Department of Inorganic Chemistry - functional materials, (Austria).
- 2017 - Invited seminar "Innovative photocured polymer electrolyte membranes for efficient energy storage and conversion systems", September 6, 2017 at the Hunter College and CUNY Graduate Center, The City University of New York (US).
- 2016 - Invited seminar "Nuovi orientamenti nel campo degli accumulatori elettrochimici di energia @POLITO", June 17, 2016 at the Department of Chemical Sciences of the University of Naples "Federico II" (IT).
- 2015 - Invited seminar "Materials, Processes and Devices for Energy Storage and Conversion", June 25, 2017 at the MIT - Massachusetts Institute of Technology in Boston (US).

FUNDED PROJECTS (COMPETITIVE GRANTS), Principal Investigator

Scientific coordinator (PI) of the research unit of the Politecnico di Torino in the EU project "PSIONIC - High voltage, room temperature single-ion polymer electrolyte for safer all solid state lithium metal batteries". The project (8 M€) is coordinated by Blue Solutions (France) and funded by the European Commission in the framework of HORIZON EUROPE research programme (HORIZON-CL5-2021-D2-01, Cross-sectoral solutions for the climate transition, topic: HORIZON-CL5-2021-D2-01-03), proposal ID 101069703, just funded in 2022, GA under discussion.

Scientific coordinator (PI) of the research unit of the Politecnico di Torino in the EU project "SUNRISE - MultiSensor sorting tools in a circular economy approach for the efficient recycling of PVB interlayer material in high-quality prodUcts from laminated glass coNstRuction and demolition waStEs". The project (9 M€) is coordinated by LUREDERRA (Spain) and funded by the European Commission in the framework of H2020 research programme (H2020-LOW-CARBON-CIRCULAR-INDUSTRIES-2020, COMPETITIVE, LOW CARBON AND CIRCULAR INDUSTRIES, topic: CE-SC5-07-2020), GA 958243.

Scientific coordinator (PI) of the research unit of the Politecnico di Torino in the Marie Skłodowska-Curie Innovative Training Networks - European Training Networks (MSCA ITN-ETN) "POLYSTORAGE - European Training Network In Innovative Polymers For Next-Generation Electrochemical Energy Storage" funded within the Call: H2020-MSCA-ITN-2019, which aims to develop high quality training opportunities for 16 (15+1 financed with Australian funds) early stage researchers (ESRs) in the area of Polymers for Next Generation Electrochemical Energy Storage. The project is coordinated by University of Jena and will formally start within the end of 2019 (2020-2024, GA 860403, total budget 3.90 M€). Prof. Gerbaldi will be supervisor of 1 ESR at Politecnico and co-supervisor of ESR of Lithops S.r.l. who will be awarded of the Ph.D. title at Politecnico.

Scientific coordinator (PI) of the research unit of the Politecnico di Torino in the National PRIN project "Towards sustainable, high-performing, all-solid-state sodium-ion batteries". The project (610 k€) is coordinated by the University of Milano Bicocca and is funded by the Italian Ministry of Education, Universities and Research (MIUR) in the framework of the 2017 proposals for funding, on a three-year basis, research projects of national interest (PRIN).

Scientific coordinator (PI) of the research unit of the Politecnico di Torino in the EU project "SI-DRIVE – Silicon Alloying Anodes for High Energy Density Batteries comprising Lithium Rich Cathodes and Safe Ionic Liquid based Electrolytes for Enhanced High VoltagE Performance". The project (7.99 M€) is coordinated by the University of Limerick and is funded by the European Commission in the framework of H2020 research programme (call H2020-NMBP-ST-IND-2018), GA n. 814464.

Scientific coordinator (PI) of the research unit of the Politecnico di Torino in the EU project "EnABLES – European Infrastructure Powering the Internet of Things". The project (5.21 M€) is coordinated by the Tyndall National Institute and is funded by the European Commission in the framework of H2020 research programme (call H2020-INFRAIA-2016-2017), GA n. 730957.

Scientific responsible of WP6, devoted to the development of safe, high performing electrolytes, in the EU project FP7 GC.NMP.2013-1 (2013-2017) "MARS EV - Materials for Ageing Resistant Li-ion High Energy Storage for the Electric Vehicle", GA 609201 (9.00 M€, 6.57 M€ requested EU contribution, closed in November 2017).

Participation in the following international and national research projects, eligible for funding based on competitive calls awarded through a peer-review process: i) EU H2020 project "RECODE - Recycling carbon dioxide in the cement industry to produce added-value additives: a step towards a CO_2 circular economy", GA No 768583 (2017-2021, 7.90 M€); ii) EU H2020 project "MOZART - MesopOrous matrices for localiZed pH-triggered releAse of theRapeuTic ions and drugs", GA n. 685872 (4.65 M€); iii) EU project SMART-EC (FP7-ICT-2009-5), FP7 GA N° 258203 (2010-2014), entitled "Smart electrochromic active matrix components for stand-alone multifunctional devices".

RESEARCH CONTRACTS, Principal Investigator

ENI SpA (ENIProgetti) – Study of a sensor based on MOFs/Resins for harsh environment (2018, 71.5 k€).

TOYOTA MOTOR EUROPE NV/SA – Polymer electrolytes specifically conceived for Li-metal batteries (2016-17, 105 k€).

TOYOTA MOTOR EUROPE NV/SA – Polymer electrolytes specifically conceived for Li-metal batteries (2018, 18 k€).

SOLVAY S.A. - Feasibility study of using PFPE in Solid Polymer Electrolyte composites for Lithium Batteries (2017-18, 130 k€).

PAR (Piano Annuale di Realizzazione): Ricerca di Sistema Elettrico, Project C.5 Energy storage systems for the electric system, research collaborative contract between ENEA and Politecnico di Torino (2016 – 40 k€, 2017 – 36 K€, 2018 – 16 k€).

PTR (Piano Triennale di Realizzazione): Ricerca di Sistema Elettrico, Project C.5 Energy storage systems for the electric system, research collaborative contract between ENEA and Politecnico di Torino (2019-2021 – 116 k€).

Individual Research Contract with Mr. P. De Poli – Innovative electrode materials for dual-carbon batteries: a feasibility study (2014-15, 25 k€).

Institut Polytechnique de Grenoble (France) - Production and electrochemical characterization of slurries and electrodes for Li-ion cells. In the framework of the project “PAPEL - Batterie Li-Ion-Papier À Haute Qualité Environnementale” (2013-14, 13 k€).

PRIZES & AWARDS FOR THE SCIENTIFIC ACTIVITY

2021 – The article “Recent advances in eco-friendly and cost-effective materials towards sustainable dye-sensitized solar cells” published in Green Chemistry, RSC (Green Chem. 22 (2020) 7168) has been awarded among the top 1% of highly cited works from European institutions of the year.

2018 – The article “Photoanode/Electrolyte Interface Stability in Aqueous Dye-Sensitized Solar Cells” published in Energy Technology, Wiley (Energy Technology 5 (2017) 300) has been awarded among the top articles of the year.

2018 – The article "Cobalt-Based Electrolytes for Dye-Sensitized Solar Cells: Recent Advances towards Stable Devices", published in ENERGIES, MDPI AG (ENERGIES 9 (2016) 22) has been selected as Editor’s Choice.

2018 – The article "Single-ion Conducting Polymer Electrolytes for Lithium Metal Polymer Batteries that Operate at Ambient Temperature" published in ACS Energy Letters (ACS Energy Lett. 1 (2016) 678-682), is among the most cited papers published in 2016.

2018 – CG was awarded with 3000 € in the framework of the “Finanziamento delle attività base di ricerca” by the Ministry of University and Research (MIUR) of the Italian Government for his outstanding scientific research activity as Associate professor (evaluation 100/100).

2017 – The article Science 354 (2016) 203-206 has been awarded as one of the most relevant publication in the field by the leading journal on photovoltaics “Progress in Photovoltaics” (10.1002/pip.2862, source http://onlinelibrary.wiley.com/doi/10.1002/pip.2862/epdf).

2017 – The leading journal “Nature” mentioned the article Science 354 (2016) 203-206 as we proposed one of the “Five Priorities” in the perovskite field, source: 10.1038/544155, https://www.nature.com/news/make-perovskite-solar-cells-stable-1.21807.

Best paper award 2015-2016 in “Energy Storage Materials” for the research article "Nanocellulose-laden composite polymer electrolytes for high performing lithium-sulphur batteries" Energy Storage Materials 3 (2016) 69-76.

The research article Chem. Commum. 51 (2015) 16308-16311 has been listed as one of the most relevant articles by this leading journal in the solar cells field “Progress in Photovoltaics” (10.1002/pip.2737).

The research article ChemSusChem 8 (2015) 3668-3676 mentioned by Chem. Eng. Technol. 38 (2015) 2112-2113 as first example of photopolymerized electrolyte for sodium-ion batteries, classified among the 2015 “Highlights” by Wiley.

In 2015, the research article Chem. Soc. Rev. 44 (2015) 3431-3473 received the “Top open access article” Award by Royal Society of Chemistry.

2014 - The high-impact journal Materials Today, which publishes the most recent and original novelties in all scientific research fields, awarded the publication Acta Mater. 69 (2014) 60 as one of the most significant research article in the energy field (“Fast route to TiO2 battery anodes”).

Best poster award at the conference POLY-2008 Advances in Polymer Science and Technology, 28-31 January 2008 - New Delhi, India.

Best poster award at the conference APA-2009 Polymer Science & Technology: Vision and Scenario, 17-20 December 2009 – New Delhi, India.

“Prix des Techniques Innovantes pour l'Environnement 2012” for the "Elaboration de batteries Li-ion au moyen de fibres de cellulose and de techniques de fabrication du papier", prize awarded by Info Chimie Magazine and ADEME (the French energy control company), awarded during the POLLUTEC 2012 exhibition, SALON INTERNATIONAL DES ÉQUIPEMENTS, DES TECHNOLOGIES ET DES SERVICES DE L'ENVIRONNEMENT, Lyon (FR), 27-30 November 2012.

Claudio GERBALDI – Publications at a glance, APPENDIX B

161 articles in ISI peer-reviewed journals, **299** co-authors (*source SCOPUS, September 24th, 2022*)

H-index (SCOPUS): **62** **8639** total citations (>1100 citation counts per year in recent years, <8% self-citations)

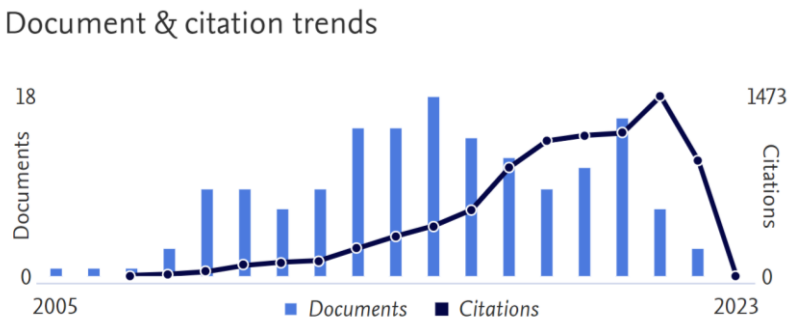
H-index (Scholar): **64** **9981** total citations

H-index (WebOS): **60** **8305** total citations

1 research article as single author, >100 articles as corresponding author

More than 80% of articles published in ISI journals with IF > 5

Document and citation trends (SCOPUS):



Participation in > **100** national/international conferences (**>120 oral talks and/or poster presentations**), **15** as a distinguished invited/keynote speaker. **5** International granted patents, **6** research book chapters.

TOP 15 SELECTED PUBLICATIONS

Some of the most important research articles of Prof. Gerbaldi, published on top-level international scientific journals, are detailed below; they have been selected because they truly represent and characterise his scientific activity over the years, being the development of innovative materials (mainly electrode materials and polymer electrolytes) for energy storage and conversion devices and their thorough characterisation.

1. Lingua, G.; Grysan, P.; Vlasov, P.S.; Verge, P.; Shaplov, A.S.; Gerbaldi, C., Unique Carbonate-Based Single Ion Conducting Block Copolymers Enabling High-Voltage, All-Solid-State Lithium Metal Batteries. MACROMOLECULES, pp. 6911, 2021, Vol. 54, DOI: 10.1021/acs.macromol.1c00981
2. Ferrari, S.; Falco, M.; Munoz-Garcia, A.B.; Bonomo, M.; Brutti, S.; Pavone, M.; Gerbaldi, C., Solid-State Post Li Metal Ion Batteries: A Sustainable Forthcoming Reality? ADVANCED ENERGY MATERIALS, art. n. 2100785, 2021, Vol. 11, DOI: 10.1002/aenm.202100785
3. Falco, M.; Castro, L.; Nair, J.R.; Bella, F.; Bardè, F.; Meligrana, G.; Gerbaldi C., UV-Cross-Linked Composite Polymer Electrolyte for High-Rate, Ambient Temperature Lithium Batteries. ACS APPLIED ENERGY MATERIALS, pp. 1600, 2019, Vol. 2, DOI: 10.1021/acsaem.8b02185
4. Falco, M.; Simari, C.; Ferrara, C.; Nair, J.R.; Meligrana, G.; Bella, F.; Nicotera, I.; Mustarelli, P.; Winter, M.; Gerbaldi, C., Understanding the Effect of UV-Induced Cross-Linking on the Physicochemical Properties of Highly Performing PEO/LiTFSI-Based Polymer Electrolytes. LANGMUIR, pp 8210, 2019, Vol. 35, DOI: 10.1021/acs.langmuir.9b00041
5. Lefrançois Perreault, L.; Colò, F.; Meligrana, G.; Kim, K.; Fiorilli, S.; Bella, F.; Nair, J.R.; Vitale-Brovarone, C.; Florek, J.; Kleitz, F.; Gerbaldi, C., Spray-Dried Mesoporous Mixed Cu-Ni Oxide@Graphene Nanocomposite Microspheres for High Power and Durable Li-Ion Battery Anodes. ADVANCED ENERGY MATERIALS, art. no. 1802438, 2018, Vol. 8. DOI: 10.1002/aenm.201802438
6. Bella, F.; Galliano, S.; Falco, M.; Viscardi, G.; Barolo, C.; Grätzel, M.; Gerbaldi, C., Approaching truly sustainable solar cells by the use of water and cellulose derivatives, GREEN CHEMISTRY, pp. 9, 2017, Vol. 19, DOI: 10.1039/C6GC02625G
7. Colo, F.; Bella, F.; Nair, J.R.; Gerbaldi, C., Light-cured polymer electrolytes for safe, low-cost and sustainable sodium-ion batteries, JOURNAL OF POWER SOURCES, pp. 293, 2017, Vol. 365, DOI: 10.1016/j.jpowsour.2017.08.079
8. Porcarelli, L.; Shaplov, A. S.; Bella, F.; Nair, J. R.; Mecerreyes, D.; Gerbaldi, C., Single-Ion Conducting Polymer Electrolytes for Lithium Metal Polymer Batteries that Operate at Ambient Temperature, ACS ENERGY LETTERS, pp. 5, 2016, Vol. 1, DOI: 10.1021/acsenergylett.6b00216
9. Bella, F.; Griffini, G.; Correa-Baena, J.P.; Saracco, G.; Gratzel, M.; Hagfeldt, A.; Turri, S.; Gerbaldi, C., Improving efficiency and stability of perovskite solar cells with photocurable fluoropolymers, SCIENCE, pp. 203, 2016, Vol. 354, DOI: 10.1126/science.aah4046
10. Porcarelli, L.; Gerbaldi, C.; Bella, F.; Nair, J. R., Super Soft All-Ethylene Oxide Polymer Electrolyte for Safe All-Solid Lithium Batteries, SCIENTIFIC REPORTS, pp. 14, 2016, Vol. 6, DOI: 10.1038/srep19892
11. Bella, F.; Leftheriotis, G.; Griffini, G.; Syrrokostas, G.; Turri, S.; Grätzel, M.; Gerbaldi, C., A New Design Paradigm for Smart Windows: Photocurable Polymers for Quasi-Solid Photoelectrochromic Devices with Excellent Long-Term Stability under Real Outdoor Operating Conditions, ADVANCED FUNCTIONAL MATERIALS, pp. 11, 2016, Vol. 26, DOI: 10.1002/adfm.201503762

12. Bella, F.; Colò, F.; Nair, J. R.; Gerbaldi, C., Photopolymer Electrolytes for Sustainable, Upscalable, Safe, and Ambient-Temperature Sodium-Ion Secondary Batteries, CHEMSUSCHEM, pp. 9, 2015, Vol. 8, DOI: 10.1002/cssc.201500873
13. Gerbaldi, C.; Nair, J.R.; Kulandainathan, M.A.; Kumar, R.S.; Ferrara, C.; Mustarelli, P.; Stephan, A.M., Innovative high performing metal organic framework (MOF)-laden nanocomposite polymer electrolytes for all-solid-state lithium batteries, JOURNAL OF MATERIALS CHEMISTRY A, pp. 9948, 2014, Vol. 2, DOI: 10.1039/c4ta01856g
14. Jabbour L.; Gerbaldi C.; Chaussy D.; Zeno E.; Bodoardo S.; Beneventi D., Microfibrillated cellulose–graphite nanocomposites for highly flexible paper-like Li-ion battery electrodes, JOURNAL OF MATERIALS CHEMISTRY, pp. 4, 2010, Vol. 20, DOI: 10.1039/c0jm01219j
15. Meligrana, G.; Gerbaldi, C.; Tuel, A.; Bodoardo, S.; Penazzi, N., Hydrothermal synthesis of high surface $LiFePO_4$ powders as cathode for Li-ion cells, JOURNAL OF POWER SOURCES, pp. 7, 2006, Vol. 160, DOI: 10.1016/j.jpowsour.2005.12.067

PATENTS

1. European patent application: "Solid electrolyte composition". Inventors: Elena Molena, Christine Hamon, Silvia Rita Petricci, Gulia Piana, Federico Bella, Claudio Gerbaldi. Applicants/Owners: Solvay Specialty Polymers Italy S.P.A. Application number (also used for priority declarations) EP18205752.1, Filing date: 12/11/2018.
2. International patent: "Composite polymer electrolyte (CPE) membranes for secondary solid state Li-metal cells and process for the production thereof". Inventors: Laurent Castro, Fanny Barde, Jijeesh Ravi Nair, Falco Marisa, Federico Bella, Claudio Gerbaldi. Applicants/Owners: Toyota Motor Europe and Politecnico di Torino. Patent number: WO/2019/052648. Publication date: 21/03/2019. PCT filing number: PCT/EP2017/073163, PCT filing date: 14/09/2017.
3. International patent: "Polymer electrolyte membranes and process for the production thereof". Inventors: Jijeesh Ravi NAIR, Claudio Gerbaldi, Luca PORCARELLI, Federico BELLA, Italo DOBERDO', Silvia Bodoardo, Nerino Penazzi, Claudio CAPIGLIA. Applicant/Owner: Lithops S.R.L. Patent number: WO2015104727 A1. Publication date: 16/07/2015, PCT filing date: 10/01/2014.
4. International patent: "Method for preparing self-supporting flexible electrodes". Inventors: Lara JABBOUR, Didier Chaussy, Davide Beneventi, Matteo DESTRO, Silvia Bodoardo, Claudio Gerbaldi, Nerino Penazzi. Applicant/Owner: Institut Polytechnique De Grenoble - CNRS. Patent number: WO2013050713 A1, Publication date: 11/04/2013. PCT filing date: 4/10/2012. Priority date: 6/11/2011.
5. International patent: "Hydrothermal Process for the Production of LiFePO4 Powder". Inventori: Silvia Bodoardo, Claudio Gerbaldi, Giuseppina Meligrana, Francesca Di Lupo, Nerino Penazzi, Daniela Fontana. Applicants/Owners: Politecnico di Torino, Rockwood Italia S.P.A. Patent number: WO 2011057646 A1, Publication date: 19/05/2011, PCT filing date: 10/11/2009.

RESEARCH BOOK CHAPTERS

1. P. Jagdale, G. Rius, K. Rajan, J.R. Nair, M. Rovere, A. Tagliaferro, C. Gerbaldi (2020). Carbon from waste source for Li-ion battery. Carbon-Based Smart Materials, edited by: Constantinos A. Charitidis, Elias P. Koumoulos and Dimitrios A. Dragatogiannis, De Gruyter. DOI: https://doi.org/10.1515/9783110479133.
2. F. Bella, C. Gerbaldi, S. Turri, G. Griffini (2018). Photopolymers for Third-generation Solar Cells. In: Lalevée J. Fouassier J.-P.. Photopolymerisation Initiating Systems. RSC POLYMER CHEMISTRY SERIES, p. 504-523, CAMBRIDGE: The Royal Society of Chemistry, ISBN: 978-1-78262-962-7, ISSN: 2044-0790, doi: 10.1039/9781788013307-00504.
3. F. Bella, C. Gerbaldi, (2016). Natural Polymers for Dye-Sensitized Solar Cells: Electrolytes and Electrodes, In: Encyclopedia of Polymer Science and Technology, John Wiley & Sons, Inc. (US), pp. 17, 2016, ISBN: 9780471440260, DOI: 10.1002/0471440264.pst646.
4. F. Bella, A. Chiappone, J.R. Nair, G. Meligrana, C. Gerbaldi (2014). Effect of Different Green Cellulosic Matrices on the Performance of Polymeric Dye-Sensitized Solar Cells, In: Chemical Engineering Transactions, The Italian Association of Chemical Engineering - AIDIC Servizi S.r.l., pp. 6, 2014, Vol. 41, ISBN: 9788895608327, DOI: 10.3303/CET1441036.
5. L. Zolin, M. Destro, D. Curtil, D. Chaussy, N. Penazzi, D. Beneventi, C. Gerbaldi (2014). Flexible Cellulose-Based Electrodes: Towards Eco-friendly All-paper Batteries, In: Chemical Engineering Transactions, The Italian Association of Chemical Engineering - AIDIC Servizi S.r.l, pp. 6, 2014, Vol. 41, DOI: 10.3303/CET1441061.
6. S. Bianco; A. Chiodoni; C. Gerbaldi; M. Quaglio (2012). Nanostructures for Energy, In: Encyclopedia of nanotechnology, Bharat Bushan, Springer, pp. 11, 2012, ISBN: 9789048197507, DOI: 10.1007/978-90-481-9751-4_253.
7. R. Bongiovanni, J.R. Nair, C. Gerbaldi, A.M. Stephan (2011). Membranes for lithium batteries, In: Advanced membrane science and technology for sustainable energy and environmental applications, Basile A, Pereira Nunes S., Woodhead Publishing Limited (UK), pp. 30, 2011, ISBN: 9781845699697.

I hereby declare that the above-mentioned information is correct to the best of my knowledge.

Place:
Torino (TO), Italy

Signature
(Claudio GERBALDI)

Date:
September 24th, 2022