Curriculum

Nome Name:	Federico
Cognome Surname:	BELLA

ORCID:	n.d.
Scopus Author ID:	55600535900
WOS Author ID:	n.d.
Sito WEB WEB site:	https://www.polito.it/en/staff?p=federico.bella

POSIZIONE PROFESSIONALE ATTUALE / CURRENT PROFESSIONAL POSITION:

Posizione attuale Current position:	In servizio
Qualifica Qualification:	Professore Ordinario (L. 240/10)
Ateneo/Ente/Azienda University/Institution/Company:	Politecnico di TORINO
Nazione Ateneo/Ente/Azienda University/Institution/Company Country:	ITA
Anno inizio Start Year:	2022
Anno fine End Year:	n.d.

PRECEDENTI ESPERIENZE LAVORATIVE (ULTIMI 10 ANNI) / PREVIOUS WORK EXPERIENCE (LAST 10 YEARS):

LINGUE / LANGUAGES:

Lingua Language:	Inglese
Scrittura Writing:	C2
Comunicazione Comunication:	C2

Lingua Language:	Italiano
Scrittura Writing:	madrelingua
Comunicazione Comunication:	madrelingua

AREA/SETTORE SCIENTIFICO-DISCIPLINARE / AREA/SECTOR SCIENTIFIC-DISCIPLINARY

Area scientifico-disciplinare Area scientific-disciplinary:	Scienze chimiche
Area scientifico-disciplinare codice Area scientific-disciplinary code:	03
Settore scientifico-disciplinare codice Sector scientific-disciplinary code:	-Fondamenti chimici delle tecnologie
Settore scientifico-disciplinare codice Sector scientific-disciplinary code:	-CHEM-06/A

DESCRIZIONE DEI PRINCIPALI RISULTATI SCIENTIFICI CONSEGUITI NEGLI ULTIMI 10 ANNI (CON ANNESSO ELENCO DI MASSIMO 10 PUBBLICAZIONI) / DESCRIPTION OF THE MAIN SCIENTIFIC RESULTS ACHIEVED IN THE LAST 10 YEARS (WITH ATTACHED LIST OF MAXIMUM 10 PUBLICATIONS):

Descrizione Description:	*My scientific passion concerns the chemistry of energy materials: electrodes, electrolytes and packaging for photovoltaics, batteries, supercapacitors and electrocatalytic reactors. I have always loved seeing these technologies underlying the energy/ecological transition as belonging to a single large family, and therefore I have always tried to develop materials that can be used transversally to these purposes. The three most recent topics I have worked on are: self-healing components for lithium batteries, electrodes/electrolytes for solar cells operating in aqueous environments, recovery of lignin from biomass and its use in potassium batteries. Globally, my research concerns sustainable energy technologies, applying the concept of sustainability also to the preparation of device components. I also couple experimental research with chemometric strategies to optimize laboratory activities and data analysis. Also, on some topics, I've carried out a preliminary scale-*

	up of the proposal materials and chemical processes; for example, in 2022 I've set up a 100 m2 pilot line for batteries production with water-based processes. In 2024, I got a FISA project and I am implementing the first Italian laboratory on potassium batteries

PUBBLICAZIONI / PUBLICATIONS:

Anno della pubblicazione Year of publication:	2025
Citazione Citation:	A. Mangini, J. B. V. Mygind, S. Garcia-Ballesteros, A. Pedico, M. Armandi, I. Chorkendorff, F. Bella (2025). Multivariate approaches boosting lithium-mediated ammonia electrosynthesis in different electrolytes. ANGEWANDTE CHEMIE, vol. 64, ISSN: 1521-3773, doi: 10.1002/anie.202416027

Anno della pubblicazione Year of publication:	2025
Citazione Citation:	F. Elizalde, S. Trano, J. Ayestarán, X. Lopez de Pariza, R. Aguirresarobe, C. Francia, D. Mecerreyes, H. Hardon, F. Bella (2025). A light-mediated, 3D-printable, and self-healable polymer electrolyte for lithium batteries. ADVANCED FUNCTIONAL MATERIALS, vol. 35, ISSN: 1616-3028, doi: 10.1002/adfm.202419034

Anno della pubblicazione Year of publication:	2024
Citazione Citation:	P. Prete, S. Trano, P. Zaccagnini, L. Fagiolari, J. Amici, A. Lamberti, A. Proto, F. Bella, R. Cucciniello (2024). Glycerol carbonate and solketal carbonate as circular economy bricks for supercapacitors and potassium batteries. CHEMSUSCHEM, vol. 17, ISSN: 1864-564X, doi: 10.1002/cssc.202401636

Anno della pubblicazione Year of publication:	2025
Citazione Citation:	G. Pascuzzi, S. Trano, C. Francia, S. Turri, F. Bella, G. Griffini (2025). Elucidating the interplay between structure and electrochemical behavior in lignin-based polymer electrolytes for potassium batteries. BATTERY ENERGY, vol. 4, ISSN: 2768-1696, doi: 10.1002/bte2.70002

Anno della pubblicazione Year of publication:	2025
Citazione Citation:	Domenici, Sara, Speranza, Roberto, Bella, Federico, Lamberti, Andrea, Gatti, Teresa (2025). A Sustainable Hydrogel-Based Dye-Sensitized Solar Cell Coupled to an Integrated Supercapacitor for Direct Indoor Light-Energy Storage. SOLAR RRL, vol. 9, ISSN: 2367-198X, doi: 10.1002/solr.202400838

Anno della pubblicazione Year of publication:	2024
Citazione Citation:	Versaci, Daniele, Colombo, Roberto, Montinaro, Giorgio, Buga, Mihaela, Cortes Felix, Noelia, Evans, Gary, Bella, Federico, Amici, Julia, Francia, Carlotta, Bodoardo, Silvia (2024). Tailoring cathode materials: A comprehensive study on LNMO/LFP blending for next generation lithium-ion batteries. JOURNAL OF POWER SOURCES, vol. 613, ISSN: 0378-7753, doi: 10.1016/j.jpowsour.2024.234955

Anno della pubblicazione Year of publication:	2025
Citazione Citation:	Ravesio E., Montinaro G., Mincuzzi G., Negozio M., Versaci D., Gartiser V., Lutey A. H. A., Bella F., Bodoardo S. (2025). Ultrashort pulsed laser texturing of current collector for Si/C Li-ion anodes: Characterization of electrochemical performance and evolution of interface morphology. JOURNAL OF ENERGY STORAGE, vol. 109, ISSN: 2352-152X, doi: 10.1016/j.est.2024.115226

Anno della pubblicazione Year of publication:	2019
Citazione Citation:	T. N. Huan, D. A. Dalla Corte, S. Lamaison, D. Karapinar, L. Lutz, N. Menguy, M. Foldyna, S. H. Turren-Cruz, A. Hagfeldt, F. Bella, M. Fontecave, V. Mougel (2019). Low-cost high-efficiency system for solar-driven conversion of CO2 to hydrocarbons. PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 116, p. 9735-9740, ISSN: 1091-6490, doi: 10.1073/pnas.1815412116

Anno della pubblicazione Year of publication:	2019
Citazione Citation:	L. Fagiolari, F. Bella (2019). Carbon-based materials for stable, cheaper and large-scale processable perovskite solar cells. ENERGY & ENVIRONMENTAL SCIENCE, vol. 12, p. 3437-3472, ISSN: 1754-5706, doi: 10.1039/C9EE02115A

Anno della pubblicazione Year of publication:	2016
Citazione Citation:	BELLA, FEDERICO, Griffini, G., Correa Baena, J. P., SARACCO, GUIDO, Grätzel, M., Hagfeldt, A., Turri, S., GERBALDI, CLAUDIO (2016). Photocurable fluoropolymers improve efficiency and stability of perovskite solar cells. In: Proceedings of the Merck Young Chemists Symposium. p. 115, ROMA:Società Chimica Italiana, ISBN: 978-88-86208-92-5, Rimini (Italy), 25-27th October, 2016

DESCRIZIONE DEI PRINCIPALI PROGETTI DI RICERCA E PREMI CONSEGUITI NEGLI ULTIMI 10 ANNI (CON ANNESSO ELENCO DI MASSIMO 10 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO,

PRINCIPAL INVESTIGATOR O COORDINATORE LOCALE DI PROGETTI DI RICERCA COMPETITIVI NAZIONALI O INTERNAZIONALI, SIGNIFICATIVI PREMI CONSEGUITI PER LA PROPRIA ATTIVITÀ DI RICERCA)/ DESCRIPTION OF THE MAIN RESEARCH PROJECTS AND AWARDS AWARDED IN THE LAST 10 YEARS (WITH ATTACHED LIST OF MAXIMUM 10 ACHIEVEMENTS, INCLUDING, FOR EXAMPLE, PRINCIPAL INVESTIGATOR OR LOCAL COORDINATOR OF NATIONAL OR INTERNATIONAL COMPETITIVE RESEARCH PROJECTS, SIGNIFICANT AWARDS AWARDED FOR YOUR RESEARCH ACTIVITY):

Descrizione Description:	*Federico Bella's research activity, on the border between electrochemistry, materials chemistry and green chemistry, has allowed the drafting of project proposals with a very high success rate, both on a national and international scale. By way of example, Federico Bella received an ERC Starting Grant on the electrochemical production of ammonia, proposing for the first time a process that is typically used in the field of lithium batteries. The technology transfer activity that Federico Bella conducted at the Polytechnic of Turin allowed him to be involved in many high-TRL international projects for the development of chemical technologies for energy and sustainability. As regards awards, Federico Bella has recently won the following ones: Jun 2023 - Tajima Prize, Awarded by the International Society of Electrochemistry (1000 EUR) for contributions in the field of advanced photoelectrochemical cells and post-lithium batteries Sep 2022 - Junior Prize for Scientific Research in "Organic chemistry for environment, energy and nanoscience", Awarded by the Organic Chemistry Division of Società Chimica Italiana Dec 2021 - "Italia Giovane" Prize, Special mention to the personal and professional experience as a positive example of prestige to the country and a strong stimulus for the new generations Nov 2021 - USERN Prize, Awarded by the Universal Scientific Education and Research Network (5000 USD) for contributions in the field of biological sciences (mimicking nitrogenases); 10000 eligible candidates were nominated for this award and the jury also included previous Nobel awardees Ott 2021 - "Giorgio Squinzi" Medal, Award assigned by Società Chimica Italiana to an under-45 researcher, author of contributions of particular scientific, innovative or applicative importance, in the field of industrial chemistry Jul 2021 - ISE Prize for Electrochemical Materials Science, Awarded by the International Society of Electrochemistry (1000 EUR) for contributions in the field of electrochemical material science, including corrosion, electrodeposition and surface treatment*

Descrizione Description:	Dec 2022 – Nov 2027 / LOTUS – Lithium prOtecTion for robUst and Safe batteries / Project funded by the Ministry of University and Research (call “FARE Ricerca in Italia”) / Principal investigator (299.750 EUR) / Activity: development of lithium protection techniques for Li-S batteries

Descrizione Description:	Sep 2022 – Aug 2026 / GIGAGREEN – Towards the sustainable giga-factory: developing green cell manufacturing processes / HE project (CL5, grant agreement n° 101069707) / WP5 leader / Activity: sustainable, safe, flexible and cost effective production of Li-ion batteries

Descrizione Description:	Jun 2022 – Nov 2023 / AQUASUN – Aqueous photovoltaics as a new paradigm for solar energy conversion / Research project funded by PhosAgro/UNESCO/IUPAC / Principal investigator (30.000 USD) / Activity: development of aqueous solar cells

Descrizione Description:	Feb 2021 – Jan 2026 / SuN2rise – Solar driven electrochemical nitrogen fixation for ammonia refinery / H2020 project (ERC-StG, grant agreement n° 948769) / Principal investigator (total grant: 1.498.750 EUR) / Activity: materials and processes for the electrochemical nitrogen reduction powered by photovoltaics

Descrizione Description:	Oct 2020 – Sep 2023 / SYNERGY – Symbiosis for energy harvesting concepts for smart platforms on foils / H2020 project (WIDESPREAD, grant agreement n° 952169) / Principal investigator of PoliTO unit (total grant: 897.000 EUR) / Activity: energy harvesting and micropower management as a key component towards self-sustainable smart platforms on flexible substrates

Descrizione Description:	Sep 2020 – Aug 2023 / BATTERY 2030+ – Large-scale research initiative: at the heart of a connected green society / H2020 project (LC-BAT, grant agreement n° 957213) / Scientific activity as Professor @PoliTO unit / Activity: development of European curricula in battery technologies

Descrizione Description:	May 2020 – Apr 2024 / HYDRA – Hybrid power-energy electrodes for next generation litium-ion batteries / H2020 project (LC-BAT, grant agreement n° 875527) / Scientific activity as Professor @PoliTO unit / Activity: development of cathodic materials for high-energy Li-ion batteries

Descrizione Description:	Jan 2019 – Jan 2023 / 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 / H2020 project (LC-NMBP, grant agreement n° 814464) / Scientific activity as Assistant Professor @PoliTO unit / Activity: development of polymer electrolytes based on ionic liquids for lithium ion batteries

Descrizione Description:	Jan – Dec 2018 / PEPETOC – Perovskite photovoltaics: experimental efforts towards commercialization / Research networking project funded by Massachusetts Institute of Technology (MITOR by MISTI call) / Principal investigator of PoliTO unit (total grant: 20.000 USD) / Activity: scale-up of fabrication processes of perovskite solar cells

Descrizione Description:	Jan 2018 – Dec 2021 / EnABLES – European infrastructure powering the internet of things / H2020 project (INFRAIA, grant agreement n° 730957) / Scientific activity as Assistant Professor @PoliTO unit / Activity: development of polymer electrolytes and lab-scale devices in the lithium-ion battery framework

DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI DI SVILUPPO DI RETI E RELAZIONI SCIENTIFICHE NAZIONALI E INTERNAZIONALI (CON ANNESSO ELENCO DI MASSIMO 5 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, PARTECIPAZIONE O ORGANIZZAZIONE DI CONVEGNI NAZIONALI E INTERNAZIONALI; CONTRIBUTI A CONSORZI DI RICERCA) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF DEVELOPMENT OF NATIONAL AND INTERNATIONAL SCIENTIFIC NETWORKS AND RELATIONS (WITH ATTACHED LIST OF MAXIMUM 5 RESULTS, INCLUDING, FOR EXAMPLE, PARTICIPATION OR ORGANIZATION OF NATIONAL AND INTERNATIONAL CONFERENCES; CONTRIBUTIONS TO RESEARCH CONSORTIA):

Descrizione Description:	*Prof. Federico Bella's research activity is strongly international and withing an excellent collaborative network. Some of the relevant figures of merit are listed below and taken from SCOPUS database: - 39.1% International collaboration (percent of documents co-authored with researchers in other countries/regions) - 90% (99 documents) of documents in the top 25% most cited documents worldwide - 288 co-authors Also, Federico Bella is the current Vice-President of the Italian Chemical Society, i.e. the Italian scientific association that collects chemists active in academica, industry and teaching institutions.*

Descrizione Description:	Scuola di Chimica Industriale 2023 / PhD school (50 participants) / Chair of the Organizing committee / Turin (Italy), 28/05-01/06/2023

Descrizione Description:	Avogadro Colloquia 2019 - Elements of the Periodic Table for Energy / International conference (100 participants) / Member of the Scientific and Organizing committee / Rome

	(Italy), 17-18/12/2019

Descrizione Description:	Merck & Elsevier Young Chemists Symposium 2018 (MEYCS 2018) / International conference (210 participants) / Chair of the Scientific and Organizing committee / Rimini (Italy), 19-21/11/2018

Descrizione Description:	Invited Talk @ Italian Electrochemistry Days (GEI) 2022, Orvieto (Italy, 2022) / Nitrogen- and potassium-based technologies boosting the energy transition

Descrizione Description:	Keynote @ EUROMAT 2019, Stockholm (Sweden, 2019) / Strategies for electrodes and electrolytes design for aqueous solar cells

DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI DI SUPPORTO ALLA COMUNITÀ SCIENTIFICA (CON ANNESSO ELENCO DI MASSIMO 5 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, RESPONSABILITÀ DI DIREZIONE DI COMITATI EDITORIALI; INCARICHI DI VALUTAZIONE DELLA RICERCA PRESSO ISTITUZIONI NAZIONALI O INTERNAZIONALI; RESPONSABILITÀ ISTITUZIONALI ALL'INTERNO DELL'ISTITUZIONE DI APPARTENENZA O DI ALTRE ISTITUZIONI) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF SUPPORT TO THE SCIENTIFIC COMMUNITY (WITH ATTACHED LIST OF MAXIMUM 5 RESULTS, INCLUDING, FOR EXAMPLE, MANAGEMENT RESPONSIBILITIES OF EDITORIAL COMMITTEES; RESEARCH EVALUATION ROLES AT NATIONAL OR INTERNATIONAL INSTITUTIONS; INSTITUTIONAL RESPONSIBILITIES WITHIN THE INSTITUTION OF AFFILIATION OR OTHER INSTITUTIONS):

Descrizione Description:	*Following the excellence of the scientific research conducted by Federico Bella, he was selected as reviewer and evaluator of numerous proposals at a national and international level. Furthermore, major publishing companies have invited him to join the editorial boards of major journals in the field of chemical and materials sciences.*

Descrizione Description:	For the European Commission: • European Commission’s Health and Digital Executive Agency (2022) / Expert for the HORIZON-CL4-2022-RESILIENCE-01 call • Marie Skłodowska-Curie Individual Fellowships (2020, 2021) / Evaluator • ERC Consolidator Grant (2018) / Remote referee in PE5 panel (Synthetic Chemistry and Materials)

Descrizione Description:	For Universities: • Agence National de la Recherche (2023) / External referee for the AAPG Generic call - 2023 • National Science Center Poland (2022) / External referee for the OPUS-22 funding scheme • Ministero dell'Università e della Ricerca (2021) / External referee for the Early Career Researcher "Rita Levi Montalcini" program & External referee for the evaluation of VQR 2015-19 research products

Descrizione Description:	Editorial roles: • Chemical Engineering Journal (ISSN: 1385-8947, IF 15.1, Elsevier) / Member of the Editorial Board, since August 2017 • ACS Sustainable Chemistry & Engineering (ISSN: 2168-0485, IF 8.4, American Chemical Society) / Member of the Early Career Board, since January 2021 • ChemSusChem (ISSN: 1864-564X, IF 8.4, John Wiley & Sons, Inc.) / Member of the International Advisory Board, since January 2020

DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI VALORIZZAZIONE DELLE CONOSCENZE (CON ANNESSO ELENCO DI MASSIMO 3 RISULTATI, RELATIVI ALLA PARTECIPAZIONE DEL CANDIDATO ALLE ATTIVITÀ DI VALORIZZAZIONE DELLE CONOSCENZE) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF KNOWLEDGE VALORIZATION (WITH ATTACHED LIST OF MAXIMUM 3 RESULTS, RELATING TO THE CANDIDATE'S PARTICIPATION IN KNOWLEDGE VALORIZATION ACTIVITIES):

Descrizione Description:	*Prof. Federico Bella has dedicated a good part of his time to third mission activities. Some of these were organized with the support of the Italian Chemical Society, of which the candidate is the current vice-president.*

Descrizione Description:	Among his activities, his supporting initiatives towards other chemists must be mentioned. For instance, he has published a few editorials in top-journal advising early-career researchers in articles drafting. The most recent one has appeared in 2021 in J. Mater. Chem. A (DOI: 10.1039/D1TA90183D) and it is entitled "Scientific writing and publishing for early-career researchers from the perspective of young chemists". Sharing strategies for soft-skills development is something he likes and for which he also gave invited seminars for EuChemS ("A Marie-Curie Post-Doc: Tricks for a Successful Proposal", at ECC-6) and IUPAC ("Publishing in top journals: tips and common mistakes", at 47th World Chemistry Congress in 2019) associations.

Descrizione	He has been the President of the first assembly of the "Diffusion of chemical sciences" group

Description:	within Società Chimica Italiana, with the aim of elaborating dissemination strategies in non-professional environments and be in contact with high-school students and teachers.

Informazioni aggiornate alla data di candidatura 04-06-2025

Federico BELLA

Il presente curriculum costituisce allegato e parte integrante dell'incarico sottoscritto