SECTION B: CURRICULUM VITAE

PERSONAL INFORMATION

Family name, First name: **MECERREYES, David**

Researcher unique identifier(s): ORCID 0000-0002-0788-7156 Research ID K-7541-2014

Nationality: Spanish

URL for website: https://www.ikerbasque.net/en/david-mecerreyes

EDUCATION

1998	PhD in Sciences, Centre for Macromolecular Research and Education, University of Liege, Belgium "Macromolecular Engineering of Biodegradable Polymers" PhD advisor Prof. Robert Jèrôme.
1994	Master in Chemistry, University of the Basque Country, San Sebastian, Spain.

CURRENT POSITION(S)

2011 – now	Ikerbasque Research Professor at University of the Basque Country, Spain and leader of the Innovative Polymers Group of POLYMAT (25 researchers).
2018 – now	Scientific-Vicedirector of POLYMAT Basque Center for Macromolecular Design and Engineering (www.polymat.eu), San Sebastian-Spain (180 researchers). In 2024 he will become director.
2018 – 2022	Collaborator of the Agencia Española de Investigación (AEI) in the Materials Panel
2020 – now	Co-founder and Scientific Advisor of POLYKEY start-up

PREVIOUS POSITIONS

1998 – 2000	Post-doctoral Research at Center for Polymeric Interfaces and Macromolecular Assemblies at Stanford University and IBM Almaden Research Center, USA (supervisor Dr. James L. Hedrick, Prof. Craig Hawker, Prof. Robert Waymouth).
2001 – 2010	Head of Nanotechnology Unit at CIDETEC, Centre for Electrochemical Technologies, San Sebastian, Spain.
2016, 2019	Visiting Professor (3 months) at Deakin University, Melbourne Australia and (1 month) at Beijing Institute of Technology, China.

FELLOWSHIPS AND AWARDS

2002 – 2007	Ramón y Cajal Fellow from the Spanish Ministry of Science and Technology (MCYT) at CIDETEC, Centre for Electrochemical Technologies.
2012 – 2019	ERC Consolidator Grant, iPES "Innovative Polymers for Electrochemical Energy Storage", University of the Basque Country.
2020	Research Excellency Award by the Spanish Royal Chemical Society (RSEQ), Spain.

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

2011 – Now	Supervision of 33 postdocs (currently 7 postdocs) and 38 PhD students (25 graduated, currently (co)supervising 12 PhD students) and 25 master students.
2011 – Now	Host of more than 25 international visiting researchers including Prof/Postdocs/PhD/Master students coming from all-around the world, such as Prof. Maria Forsyth (Australia), Prof. Tim Long, Jason Bara (USA), Prof. Didier Gigmes and Daniel Taton (France) and Prof. Cristophe Detrembleur (Belgium) and Prof. Muhua Huang (BIT, China).

TEACHING ACTIVITIES

2014 – Now	Teaching position – Advanced Polymer Synthesis and Applications, Master in Polymer Science, University of the Basque Country, Spain.

ORGANISATION OF SCIENTIFIC MEETINGS

2022	Co-Chairman of Spanish and Iberoamerican Polymer Congress GEP-SLAP 2022 in San Sebastian, Spain (>400 participants).
2020	Organizer of Virtual Event "Workshop in Polymers&Batteries" (150 participants).
2018	Chairman ECNP European Centre in Nanostructured Polymers Congress in San Sebastian, Spain (250 participants).
2015	Chairman of JIP-JEPO Congress for Young Researchers in Polymer Science in France and Spain (110 participants).
2014	Organizer of SUSPOL Summer School in Sustainable Polymers (120 participants).

INSTITUTIONAL RESPONSIBILITIES

2022 – Now	Scientific Director of Maria de Maeztu POLYMAT grant for Excellency Resarch Centers in Spain.
2015 – Now	Vicepresident of the Specialized Polymer Group (GEP) of the Royal Spanish Society of Chemistry (RSEQ) and national representative in the European Polymer Federation (EPF).
2012 – 2017	Coordinator of European Projects FP7-MSCA-ETN RENAISSANCE "Training network in innovative polyelectrolytes for Energy and Environment" (Grant agreement ID 28934,10 partners, 3 M€) and FP7-MSCA-RISE IONRUN "Innovative Ionic polymers from Natural Sources for Energy&Environment" (Grant agreement ID 318873, 6 partners, 0.5 M€) European projects and H2020-MSCA-EID POLYTE "Innovative POLYmers for Lithium Battery Technologies" (Grant agreement ID: 765828, 2 partners, 0.9 M€)
2022 – Now	Coordinator of European projects and MSCA-RISE IONBIKE "Iongels: from new chemistry toward emerging applications" (Grant agreement ID: 823989, 9 partners, 1.4 M€).

REVIEWING AND EDITOR ACTIVITIES

2023	Member of the International Advisory Board of journals ACS Macro Letters, Materials Horizons, Macromolecular Chem. Phys.
2023	Since March 2023, Associated Editor of ACS Applied Polymer Materials.
2018 – 2022	Review panel member of Agencia Española de Investigación (AEI) in the area of Materials including national projects, personal grants (Ramon y Cajal) and infrastructures.
2011 – Now	Reviewer of several calls within H2020 such as Marie Slowdowska Curie individual fellowships (2016, 2017, 2020), joint NMP-Energy call (2015), ERC Starting grant (2017, 2018), EIC Pathfinder and Transition (2022 and 2023), JU Hydrogen calls (2022 and 2023) and external reviewer of several EU ongoing projects.
2011-Now	Member of panels for the evaluation of more than 30 PhD thesis or HDR thesis in different countries (Spain, France, Sweden, Belgium, Australia, Italy, Germany).
2015-Now	International Reviewer of several national agencies such as ANR (France), NCN (Poland), CSF (Czeck), NSF (USA), FWO (Belgium).

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2011 – Now	Active member of RSEQ (Spanish Royal Society of Chemistry) and ACS (American Chemical Society).

MAJOR COLLABORATIONS

Prof. Mecerreyes has a strong collaborative culture for the application and advanced characterizations of the polymers developed within his group. Current major collaborators include George Malliaras, University of Cambridge, UK (Bioelectronic Devices), Maria Forsyth, Deakin University, Australia (Ionic liquids, solid NMR and batteries), James L. Hedrick IBM Research (Organocatalysis, Computing), Michel Armand CIC Energigune, (Sodium Batteries), Natalie Stingelin, GeorgiaTech, USA (Advanced Characterization), Alejandro Müller POLYMAT, Spain (Polymers crystallization), Sahika Inal (KAUST, bioelectronic devices), among others.

Appendix: All on-going grants and submitted grants applications of the PI (Funding

ID)

Mandatory information (not counted towards page limits)

On-going grants (Please indicate "No funding" when applicable):

Project Title	Funding source	Amount (Euros)	Period	Role of the PI	Relation ERC
POLYMAT Center of Excellence	Maria de Maeztu-Spain	200.000 €	2022-	Director	Complem. No overlap
Toward high-Performance Solld-state soDium mEtal batterieS (TOPSIDES)	Strategic Lines, AEI	150.000 €	2022-2025	Partner investigator	Complem. No overlap
SUstainable self-charging power systems developed by INKjet printing (SUINK)	Horizon Europe 2021	320.000 €	2023-2027	Partner investigator	Complem. No overlap
Smart sensors and self-healing functionalities embedded for battery longevity with manufacturability and economical recyclability (SALAMANDER)	Horizon Europe 2022	350.000 €	2023-2027	Partner investigator	Complem. No overlap
Innovative Iongels for Bioelectronics (IONBIKE)	H2020 MSCA RISE	980.000 €	2019-2023	Coordinator	Complem. No overlap
Light and Organic nanotechnology for Cardiovascular Disease (LION-HEARTED)	H2020 FET OPEN	325.000 €	2019-2023	Partner PI	None
3F Hierarchical Materials combining ionic, Electronic and Redox Polymers	RETOS-Spain AEI	180.000 €	2021-2024	PI	Complem. No overlap
New Materials and systems for future energy generation and storage	Basque Government	110.000 €	2023-2024	Partner PI	Complem. No overlap
Development of H-conducting membranes for high temperature fuel cells	Industry	100.000 €	2022-2023	PI	None
New ionic polymer electrolytes for lithium batteries	Industry	110.000 €	2022-2023	PI	Complem. No overlap
European Training Networks in Polymers for batteries (POLYSTORAGE-ETN)	H2020 MSCA ETN	375.000 €	2019-2024	Partner PI	Complem. No overlap
Redox Polymer with Synergetic electrical and ionic conducting properties for all Organic Batteries (RPOB)	H2020 MSCA IF	173.000 €	2021-2023	Supervisor	Complem. No overlap

Grant applications (Please indicate "None" when applicable): None

Project Title	Funding source	Amount (Euros)	Period	Role of the PI	Relation ERC
ARC Centre of Excellence for Dynamic Ionic Systems for Energy Resilience	Australian Research Council	No funding	2023-2028	Partner Investigator	Complem. No overlap
Adagio postdoctoral Fellowship Ilaria Aziz	UPV/EHU MSCA Cofund	120.000 €	2024-2026	Supervisor	Complemen. No overlap

SECTION C: TEN YEARS TRACK-RECORD

Prof. David Mecerreyes is the leader of the Innovative Polymers Group at POLYMAT – UPV/EHU (Spain) http://www.polymat.eu/en/groups/innovative-polymers-group and currently the POLYMAT´s Scientific Vice-Director. From January 2024 he will become the scientific director. His research in polymer chemistry has been recognized with several awards, including an ERC Consolidator Grant in 2011 and the Research Excellency Award in 2020 by the Spanish Royal Chemical Society (RSEQ). He is the co-author of 370+ publications in peer-reviewed journals that have received over 24000 citations. His **h-index is 81** (Google scholar, 5/23). He is one of the co-founders of the start-up company, POLYKEY Polymers (www.polykey.eu) for bringing to the market new sustainable polymer solutions. Prof. David Mecerreyes is a **creative polymer chemist** and has pioneered important topics in polymer and materials science such as ring-opening polymerization (PhD times), polymer brushes and single-chain nanoparticles (post-doc times), poly(ionic liquid)s, polymer electrolytes for batteries and iongels and eutectogels for bioelectronics (last years).

The Innovative Polymers Group is formed by 2 permanent Ikerbasque Researchers (Prof. David Mecerreyes, Prof. Maria Forsyth), 3 Research Fellows (Dr. Nerea Casado, Dr. Daniele Mantione, Dr. Miryam Criado), 7 postdocs, 14 PhD students and 2-4 undergraduate or master students. The focus of the group is the synthesis and characterization of functional polymers including **poly(ionic liquid)s, conducting polymers and redox polymers for energy and bioelectronics**. Since 2004, this group has been one of the pioneers in the development of new poly(ionic liquid)s bringing to the polymer chemistry toolbox new cations and anions, macromolecular engineering concepts and new developments from the ionic liquid community such as protic ionic liquids or deep eutectic solvents. Among the different poly(ionic liquid)s developed by the group, the cationic polyelectrolyte PDADMA with sulfonamide counter-anions is now commercially available and it has been successfully investigated in different applications such as polymer electrolytes for batteries and supercapacitors, gas separation membranes, flocculants for water purification or magnetic polymers. In the last years the group has been working on the development of new types of PEDOT polymers for bioelectronics and redox polymers and polymer electrolytes for batteries which are bringing the attention of many scientists as well as industries.

Besides the scientific leadership in the area of ionic polymers, Prof. David Mecerreyes has been able to track the scientific community by organizing different workshops and conferences as well as coordinating five European collaborative projects. For example, from 2012 to 2017 he coordinated the European Training Network RENAISSANCE "Training network in innovative polyelectrolytes for Energy and Environment" (Grant agreement ID 28934,10 partners, 3 M€), the H2020 MSCA-European Industrial Doctorate POLYTE - Innovative polymers for lithium batteries - in collaboration with TOYOTA and the MSCA-RISE project IONBIKE - Iongels for Bioelectronics - (http://ionbike-rise.eu).

PUBLICATION ANALYSIS AND SCIENTIFIC IMPACT IN THE PERIOD (2001-2021)

In the last 10 years, his research activities have resulted in **230 publications** including 14 reviews, 8 book chapters, (co)editor of 2 books, (co)editor of 3 special issues and inventor of 6 patents. His articles are receiving yearly an increasing number of scientific citations (more than **2500 citations in 2022** and 18000 citations in the last 10 years).

10 REPRESENTATIVE PUBLICATIONS

1. S. Marioti et al. "Piperazinium iodide surface treatment for triple halide perovskite to achieve 32.5% efficient perovskite/silicon tandem solar cells" Science 2023 accepted.
2. M. Criado-Gonzalez et al. "Mixed conductive, injectable and fluorescent supramolecular eutectogel composites" Angewandte Chemie 2023, e2023014898.
3. G. Guzman-Gonzalez et al. "Lithium borate ionic liquids as single-component electrolytes for batteries" Advanced Energy Materials 2023, 13, 1, 2202974
4. J. Lopez de Lacalle et al. "Multifunctional Ionic Polymers from Deep Eutectic Monomers based on polyphenols" ACS Macro Letters 2023, 12, 2,125
5. F. Makhlooghiazad, et al. "Zwitterionic materials with disorder and plasticity and their application as non-volatile solid or liquid electrolytes" Nature Materials 2022, 21, 228
6. S-T. Chen et al."Reducing Passive Drug Diffusion from Electrophoretic Drug Delivery Devices through co-Ion Engineering" Advanced Science 2021, 8, 12, 2003995

7. X. Wang et al. “Toward High-Energy-Density Lithium Metal Batteries: Opportunities and Challenges for Solid Organic Electrolytes” Advanced Materials 2020, 32(18), 1905219
8. F. Bella et al. “A water based and metal-free dye solar cell exceeding 7% efficiency using a cationic poly(3,4-ethylenedioxythiophene) derivative” Chemical Science 2020, 11(6), 1485
9. L. Porcarelli et al. “Single-ion conducting polymer electrolytes for lithium metal polymer batteries that operate at ambient temperature” ACS Energy Letters 2016, 1, 678–682.
10. D. Mecerreyes, “Polymeric ionic liquids: Broadening the properties and applications of polyelectrolytes” Progress in Polymer Science 2011, 36, 12, 1629-1648

EDITED BOOKS

D. Mecerreyes and Nerea Casado “Redox Polymers for Energy and Nanomedicine” RSC Book **2020,** ISBN 978-1-788801-871-5 https://doi.org/10.1039/9781788019743
D. Mecerreyes, “Applications of Ionic Liquids in Polymer Science and Technology” Springer book, **2015** ISBN 978-3-662-44903-5. https://www.springer.com/gp/book/9783662449028

PATENTS

1. “Procedure for polyetheral synthesis” WO2019215373A1 (Licensed to industry in 2020)
2. “Poly(ionic liquid) corrosion inhibitors” WO2021097531A1 in collaboration with Deakin University
3. “Protic ionic liquid based diallyl ammonium cation and related membrane” transferred to Toyota 2023
4. “Binders for cathodes of lithium secondary battery cells” 2022 EP 21306763.0.
5. Ssolid electrolyte for solid lithium-air battery cells and method of preparation thereof WO2021/148835A1
6. “Low toxicity ether-based electrolyte for metal-air battery” Application N0. EP 22306047

LEADERSHIP IN THE TRAINING AND ADVANCEMENT OF YOUNG SCIENTISTS

The Innovative Polymers Group led by Prof. Mecerreyes has a broad training experience and dedication, which is shown by the 23 postdocs supervised, 20 PhD thesis (co)directed in the last 10 years and the 12 PhD thesis that are going on at the time of the application. It is noteworthy that ten former postdocs or PhD students have taken academic positions in different countries (Spain, Portugal, Slovenia, USA, Sweden, Mexico) while 15 have taken important industrial positions in chemical/material companies such as ARKEMA, REPSOL, DYNASOL, RECTICEL, ORIBAY, POLYKEY, BELENOS, PANAXIUM or BLUE SOLUTIONS.
His PhD student, Dr. Rebeca Marcilla is a ERC consolidator grant holder in IMDEA Energy, Spain. Haritz Sardon past -postdoc and now associated professor at University of the Basque Country received the prestigious 2021 ACS Macro Letters/Biomacromolecules/Macromolecules young Investigator Award and the 2021 Young Group Leader award by the RSEQ.
In 2020, group members Andere Basterrechea and Coralie Jehanno got prizes for the best PhD thesis by the Spanish Polymers Group (GEP). Dr. Daniele Mantione received the award of best post-doctoral researcher in Spain by the RSEQ in 2021 and Ramon y Cajal fellowship in 2022, Dr. Nerea Casado received the Ikerbasque Fellowship in 2022 and in 2023 he passed to the interview phase of ERC starting grant.

INVITED PRESENTATIONS

Prof. David Mecerreyes has been invited to deliver more than **40 invited lectures** in the last 10 years at international conferences, universities and industries. Selected examples of the last 5 years include **plenary lectures** at European Polymer Federation Congress 2022, Congress Tunissian Chemical Society 2023, Organic Battery Days 2021 (Tokio, Japan) and 2019 (Jena, Germany), International Symposium in Polymer Electrolytes ISPE2018 Yokohama (Japan), ACES Electromaterials Melbourne Australia 2016, Belgian Polymer Group 2018 and JIP-2019 Burgos. **Invited lectures** at Congress of Ionic Liquids COIL2023, European Polymer Federation Meeting in Lyon 2017, Bordeaux Polymer Conference 2018, Macro-IUPAC Korea 2020, Power-our-Future 2018 and 2020 (Vitoria, Spain), Orbitaly 2018 (Milan, Italy), ACS 2018 and 2021 (USA), BIOEL2016 (Austria), Polycondensation 2016 (Moscow-San Petersbourg) and 2018 (Washington). **Online lectures**, RSEQ lecture (2021), Bordeaux Polymers Shutdown Seminars (2020), CoNiN-Mexico Virtual 2020.