



a) Professional Preparation:

Institut Textile & Chimique de Lyon (ITECH)
Ecole Nationale Supérieure de Chimie de Montpellier (ENSCM)
University Montpellier II (UMII)
University Joseph FOURIER-Grenoble I (UJF)
University of Grenoble (UG)

Macromolecular Chemistry
Polymer Science
Polymer Physics
Physics
Chemistry Research Habilitation

M.Sc. 1993
M.Sc. 1994
M.Sc. 1994
Ph.D. 1998
HDR 2013

b) Appointments:

Since 11/22 **Co-PI/Member of the Steering Committee** of LEPMI/Blue Solutions' joint research lab **Li²** on energy storage
10/99-present **CR2** (10/99⇒10/02) Chargé de Recherche 2^{ème} classe CNRS (*CR2 is eq. to a position of Assistant Professor*), then **CR1** (10/02⇒03/15) Chargé de Recherche 1^{ère} classe CNRS (*CR1 is eq. to a position of Associate Professor*), and currently **DR2** (10/15⇒present) Directeur de Recherche 2^{ème} classe CNRS (*DR2 is eq. to a position of Full Professor*) at **CNRS Chemistry Section 13**. Laboratory: **UMR5279-LEPMI** (CNRS/Grenoble-INP/UGA/USMB)
09/13-12/17 **Deputy Head** (09/13⇒09/17) & **Director** (09/17⇒01/18) of the Observatory of Micro and NanoTechnologies UMS2920-OMNT (CEA/CNRS): A joint CEA+CNRS service unit performing strategic watches and establishing scientific strategies for CEA & CNRS into the fields of Micro/Nano-Technologies
06/98-09/99 **Visiting Researcher**, New Materials Lab. R&D Center, Hitachi Chemical. Co. Ltd, Japan

c) Short Biosketch: Dr. Patrice Rannou (ORCID: [0000-0001-9376-7136](https://orcid.org/0000-0001-9376-7136)) graduated from the Textile & Chemical Institute of Lyon (1993/M.Sc. in Polymer Chemistry), from University Montpellier II (1994/M.Sc. in Polymer Physics), and E.N.S. de Chimie de Montpellier (1994/M.Sc. in Polymer Science). He holds a PhD in Physics from the University J. Fourier (1998) and a research habilitation (HDR) in Chemistry (2013) from the University of Grenoble. After 16 months spent as a visiting researcher at the R & D New Materials Center of Hitachi Chemical Co. Ltd (HCC) in Hitachi-city, Japan, he was hired in Oct. 1999 as a CNRS researcher in the UMR5819-SyMMES (Molecular Systems & nanoMaterials for Energy & health) lab where he served till Sept. 30, 2021. Since Oct. 2021 and Nov. 2022, he is serving as a CNRS member of the **MIEL** Team (Materials, Interfaces and Electrochemistry) of the UMR5279-LEPMI (Laboratory of Electrochemistry and Physicochemistry of Materials & Interfaces) lab and acting as the co-PI & CNRS research member of the LEPMI/Blue Solutions (BS) joint Laboratory **Li²** (Lithium & interface Lab.), respectively. He holds a CNRS Director of Research position within the **section 13** (Soft Matter Chemistry & Physical Chemistry) of **CNRS Chemistry** (CNRS's National Institute of Chemistry) since Oct. 2015. Till date (i.e. Jan. 2026), he has (co)advised **19** postdoctoral fellows, (co)supervised **13** PhDs (UGA) and **10** foreign PhDs (Penn (USA) and POSTECH & SKKU (South Korea)), and **>35** (under)graduate students. He is the (co)authors of **140** papers (**83** regular articles and **57** proceeding papers), **2** book chapters, and **17** (FR/EP/JP/US/CN/KR/US) patents.

d) Research Overview: *In a nutshell*, multi-scale structures/property (electronic/ionic/protonic transfers) correlations within self-assembled and hierarchized synthetic and bio-based/mimetic/inspired functional (liquid crystalline: LC) materials. Through the rational design, circular chemistry, controlled synthesis, and advanced processing of functional soft materials aiming at encoding complex and efficient functions through hierarchical self-assembly processes across (nano⇒macro) length scales, his research activities deal with boosting efficiencies of electronic, ionic, and protonic transfers at work within active layers of (opto)electronic active devices (ICTs: Organic (Bio)electronics), of proton exchange membranes of fuel cells (Energy conversion), of thermoelectric devices (Thermoelectric generators and coolers (TEGs vs. TECs)) and of solid-state electrolytes of (μ)batteries & (μ)supercapacitors (Energy storage). I combine these (bio)materials science approaches with the developments of (lab & large-scale facility-based) multimodal platforms allowing in depth (*ex/in situ* and *operando*) studies to access (defect-free) intrinsic and ultimate electronic, ionic and protonic transfer performances of functional soft materials towards next generation applications within the fields of ICTs (Nano/Bioelectronics) and Energy conversion, harvesting (Hydrovoltaic energy) & storage (Nanonionics/Nanofluidics).

e) Products: **140 publications** (**83** regular articles & **57** proceeding papers), **2 book chapters** & **17** (FR/EP/JP/US/CN/KR/US) patents. Number of times cited & h index [source: google scholar] > **6.1k** & **37**

f) 11 Products closely related to Energy Conversion^{2,4-5,8,10}/Storage^{1-4,6-9,11} Endeavors addressing UN SDG 7

•1: H. Pung, C.Y. Okada-Junior, M. Simões Santos, M. Mirolo, I. Morfin, G. Chahine, J. Duchet-Rumeau, A. Padua, S. Livi, **P. Rannou**, M. Maréchal, "Dynamic mosaicity modulates ion transport in stimuli-responsive liquid crystal electrolytes" *Adv. Sci.*, **12**, 2025, e10610. DOI: [10.1002/advs.202510610](https://doi.org/10.1002/advs.202510610)

•2: L. Gustavsson, Z-P. Lv, T. Cherian, W. Seppälä, V. Liljeström, B. Peng, S. Huotari, **P. Rannou**, O. Ikkala, "Heating-induced switching to hierarchical liquid crystallinity combining colloidal and molecular order in zwitterionic molecules", *ACS Omega* **8**(42), 2023, pp 39345-39353. DOI: [10.1021/acsomega.3c04914](https://doi.org/10.1021/acsomega.3c04914)

•3 J. Majoinen, C. Bouilhac, **P. Rannou**, R. Borsali, "Unidirectional perpendicularly aligned lamella-structured oligosaccharide (A) ABA triblock elastomer (B) thin films utilizing triazolium+TFSI- ionic nanochannels", *ACS Macro Lett.* **11**(1), 2022, pp 140-148. DOI: [10.1021/acsmacrolett.1c00712](https://doi.org/10.1021/acsmacrolett.1c00712)

•4 D. Bresser, M. Leclère, L. Bernard, **P. Rannou**, H. Mendil-Jakani, G-T. Kim, T. Zinkevich, S. Indris, G. Gebel, S. Lyonard, L. Picard, "Organic liquid crystals as single-ion Li⁺ conductors", *ChemSusChem*. **14**(2), 2021, pp 651-6661. DOI: [10.1002/cssc.202001995](https://doi.org/10.1002/cssc.202001995). Cover picture

•5 A. Le Goff, Y. Nedellec, M. Holzinger, **P. Rannou**, V. Forge, "Ion exchange membrane". WO/2021/018983. FR3099648. EP4005000. US20220263109. CN114175326. KR1020220041138. JP2022542957

•6 L. Picard, T.F. Clement, **P. Rannou**, "Solid polymer electrolyte made of comb polymer". EP3865533. FR3107276. US20210296699. CN113270638

•7 T.F. Clement, L. Picard, **P. Rannou**, "Method for fluorinated polymer preparation by Ziegler Natta catalysis". EP3763748. FR3097548.

•8 T. Cherian, D. Rosa Nunes, T.G. Dane, J. Jacquemin, U. Vainio, T. Myllymäki, J. Timonen, N. Houbenov, M. Maréchal, **P. Rannou**, O. Ikkala, "Supramolecular self-assembly of ultraconfined ionic liquids for fast anisotropic ion transport", *Adv. Funct. Mater.* **29**(49), 2019, 1905054 (8 pages). DOI: [10.1002/adfm.201905054](https://doi.org/10.1002/adfm.201905054)

•9 P. Overton, L. Picard, **P. Rannou**, "Sulfonamide macromolecules useful as single-ion conducting polymer electrolyte", WO/2019/008061. FR3068693. EP3649107. US20200165197

•10 E.B. Trigg, T.W. Gaines, M. Maréchal, D.E. Moed, **P. Rannou**, K.B. Wagener, M.J. Stevens, K.I. Winey, "Self-assembled highly ordered acid layers in precisely sulfonated polyethylene produce efficient proton transport", *Nat. Mater.* **17**(8), 2018, pp 725-731. DOI: [10.1038/s41563-018-0097-2](https://doi.org/10.1038/s41563-018-0097-2)

•11 L. Picard, G. Gebel, M. Leclère, H. Mendil, **P. Rannou**, "Electrolyte for electrochemical generator". WO2017050769. FR3041358. EP3353262. US20180261886.

g) Synergistic activities:

- **2024-To Date:** Acting as one of the two nominated experts for [CNRS-DRE](#) within the Working Groups **WG1** (*New & Emerging Technologies*) & **WG3** (*Advanced Materials*) of the (Horizon Europe) [BATT4EU/BEPA](#) (Batteries European Partnership/Batteries European Partnership Association) strategic partnership: *Meetings & discussions and drafting of Strategic Research and Innovation Agenda (SRIA), Batteries Europe R&I Roadmap et Work Programmes (WPs 2025-2026-2027) of Horizon Europe (9th Framework Programme of The European Community)*
- **2018-To Date:** Co-organizer of the 1st/2nd/3rd/4th edition of the GrEnoble eNerGy ConversioN & storagE Winter School (ENGINE2019/2021/2023/2025) [ENGINE2025](#) <https://engine2025.sciencesconf.org> : Member of ENGINE's Organizing Committee
- **2015:** Co-organizer of the 17th Edition of the French Workshop of Self-Organized Anisotropic Systems (**CFCL2015**) <https://new.societechimiquedefrance.fr/Events/cfcl-2015/> : Member of the CFCL2015's Organizing Committee
- **2014:** Co-organizer of the 2nd Organic Electronics Summer School (**OESS2014**) <http://www.oee.sfoptique.org> : Member of the OESS's Steering Committee and Program Co-Chair (with Prof. Raphaël CLERC)
- **2013-To Date:** Member of the **ICOE's** International Advisory Committee. <https://icoe2025.co.it.pt/committees/>
- **2013-To Date:** Co-organizer of the French-American Workshop (**FAW**) <https://www.internships.giant-grenoble.org/about-the-giip/french-american-workshop/> : Member of the Organizing Committee of FAW.
- **2013:** Co-organizer of the 9th International Conference on Organic Electronics (**ICOE**) <http://www.icoe2013.org> : Member of the ICOE2013's Organizing Committee and Program Co-Chair (with Prof. Raphaël CLERC)
- **2012-To Date:** Member of the Steering Committee of the **MINATEC Summer Program (MSP)** and **Giant International Internship Programme (GIIP)** <http://www.internships.giant-grenoble.org/>
- **2012 till 2014:** Responsible of communication (CNRS-INP/INC sides) of the UMR5819-SPRAM (CNRS/CEA/UJF) Lab
- **2012:** Co-organizer of the 41st National Congress of the French Association of Polymers (**GFP**) <http://gfp2012.cermav.cnrs.fr> : Member of the GFP2012's Organizing Committee
- **2006-To Date:** Co-organizer of the International Conference on Molecular Electronics (ElecMol) <https://elec2026.sciencesconf.org/> : Member of ElecMol's Organizing Committee (Till 2018) and Member of ElecMol's Scientific Committee (Since 2021)
- **2004 till 2017:** Co-leader (With Dr. Jean-Louis FAVE) of a team of ca. 25 French leading experts of the emerging field of organic (opto)electronics and Senior Expert within the Organic Electronics division of the French Observatory of Micro & NanoTechnologies **OMNT-UMS2920** (CNRS/CEA) : <http://www.omnt.fr/index.php/en/>
- **2001-03/2013:** Elected member of the Scientific Council of the UMR5819-SPRAM (CNRS/CEA/UJF) Laboratory of Structures and Property of Molecular Architectures

h) Collaborators: Prof. P.F. Barbara [Univ. of Texas @ Austin (USA)], Dr. Sebastien Boisseu [CEA-Leti (France)], Prof. Y. Bonnassieux [UMR7647-LPICM (France)], Dr. R. Borsali, [UPR5301-CERMAV (France)], Prof. A. Boucherif [Univ. de Sherbrooke & IRL3463-LN2 (Canada)], Prof. R. Bouchet [UMR5279-LEPMI (France)], Prof. C.J. Brabec [Friedrich-Alexander-Univ. (Germany)], Dr. M. Brinkmann [UPR22-ICS (France)], Dr. M. Burghammer [ESRF-ID13 (France)], Prof. R. Clerc [IOGS (France)], Dr. M.-N. Collomb [UMR5250-DCM (France)], Prof. R.J. Composto [Univ. of Pennsylvania (USA)], Dr. M. Deschamps [Blue Solutions (France)], Dr. G. De Paëpe [CEA-Grenoble/IRIG (France)], Dr. M. Diaz-Lopez [UPR2920-Institut Néel (France)], Dr. B. Donnio [UMR7504- IPCMS (France)], Dr. R. Dreyfus [Univ. de Sherbrooke & IRL3463-LN2 (Canada)], Dr. J. Drmec [ESRF-ID31 (France)], Prof. E. Drockenmüller [UMR5223-IMP (France)], Prof. Z. Fakhraei [Univ. of Pennsylvania (USA)], Prof. C.F.J. Faul [Univ. of Bristol (UK)], Dr. V. Forge [UMR5249-LCBM, (France)], Dr. G. Fragneto [Institut Laue-Langevin (France)], Prof. V.T. Forsyth [Lund Univ. & LINXS-Lund Institute of advanced Neutrons and X-ray Science (Sweden)], Dr. M. Frigoli [UMR-8180-ILV (France)], Dr. D. Gasparutto [UMR5819-SyMMES (France)], Prof. Claudio Gerbaldi [Politecnico di Torino (Italy)], Dr. A. Graillet [Specific Polymers (France)], Dr. S. Halila, [UPR5301-CERMAV (France)], Prof. D.S. Hwang [POSTECH (South Korea)] Prof. O.T. Ikkala [Aalto Univ. (Finland)], Prof. M. Leclerc [Univ. Laval (Canada)], Dr. M. Lécuyer [Blue Solutions (France)], Dr. C. Loubat [Specific Polymers (France)], Prof. D. Machon [Univ. de Sherbrooke & IRL3463-LN2 (Canada)], Dr. S. Malburet [Specific Polymers (France)], Prof. I. McCulloch [Univ. of Oxford (UK)], Dr. I. Morfin [UMR5588-LiPhy (CNRS/UGA) & ESRF-BM02-D2AM (France)], Prof. C.B. Murray [Univ. of Pennsylvania (USA)], Dr. T. Narayanan [ESRF-ID02 (France)], Prof. P.F. Nealey [Univ. of Chicago (USA)], Dr. F. Ota, [Hitachi Chemical Co., Ltd (Japan)], Prof. A.A.H. Padua [UMR5182-LCH (France)], Prof. H.S. Park [Sungkyunkwan Univ. (South Korea)], Prof. A. Pron [Warsaw Univ. of Technology (Poland)], Prof. Janne Ruokolainen [Aalto Univ. (Finland)] Prof. S. Sanaur [ENS Mines de Saint-Etienne/CMP (France)], Dr. H. Uehara [Hitachi Chemical Co., Ltd (Japan)], Dr. M. Vilkmann [VTT Technical Research Center of Finland (Finland)], Prof. C.G. Willson [Univ. of Texas @ Austin (USA)], Prof. K.I. Winey [Univ. of Pennsylvania (USA)], Prof. G.-R. Yi [POSTECH (South Korea)], Dr. A. Yassar [UMR7647-LPICM (France)], Prof. P.J. Yoo [Sungkyunkwan Univ. (South Korea)]

i) Graduate & Postdoctoral Advisors:

Dr. M. Nechtschein, Retired, formerly DR1/Directeur de Recherche 1^{ère} Classe CNRS: Thesis Advisor

Dr. T. Saitoh, Retired, formerly Director of the New Materials Laboratory R&D Center, Hitachi Chemical. Co. Ltd, Japan: Postdoc. Advisor

j) Thesis Advisor, Date [affiliations] (12 total): Bruno Dufour, 10/02 [Hutchinson (France)], Jean-Pierre Bonnet, 10/03 [UMR7314-LRCS (France)], Sirine Layouni, 07/18 [Zaion (France)], Sandrine Martins, 02/05 (France), Anaëlle Rongier, 02/18 [STMicroelectronics (France)], Sun-Jae Lee, 07/18 [Soitec (France)], Philip Overton, 03/19 [Ballard Power Systems (Canada)], T.F. Clement, 03/21 [Verkor (France)], J. Hurtaud, 06/22 [IIT-Genoa (Italy)], Y. Nait Abdi 12/22 (France), H. Pung 03/24 (France), L. Poplimont 05/24 (France).

k) Postdoctoral Associates [affiliations] (18 total): E.C. Castillon Gonzales (Spain), J. Champavert [UMR5249-LCBM (France)], M. Falco [Game lab, Politecnico Di Torino (Italy)], C. Fernandez de Alba Encinas [ICL-INSA Lyon (France)], A. Kyndiah [IIT (Italy)], O. Jaudoin [Gerflor (France)], L. Goujon [Aplix (France)], A. Iwan [General Tadeusz Kosciuszko Military Univ of Land Forces (Poland)], G. Jo [KISTEP (South Korea)], J. Majoinen [VTT (Finland)], F. Mathevet [UMR8323-IPCM (France)], Harpalsinh H. Rana [LionVolt (The Netherlands)], M. Mohankumar Sreelatha [Department of Chemistry, Bar-Ilan Univ. (Israel)], F. Oswald [CEA-Saclay (France)], François Pourtier [CEA-Leti (France)], Amrit Puzari [GIMT/Guwahati University & NIT Nagaland (India)], G. Sych [Edwards Vacuum (France)], and S. Zaioncz (Brazil)

l) Present Group: PDF (1): Mélanie Guyot ['26]. PhDs (2): Bertrand Deniger ['26] & Seongwoo Jeong ['28].

m) Total Advisees Since 1999: Undergraduates: 19. M.Sc. Students: 16. PhDs (UGA): 13. Foreign PhDs: 10. Postdoctoral Fellows: 18

n) Research Areas

- Circular (electro)chemistry towards functional (Multi-Block) Molecules, Macromolecules, Supramacromolecules & Polymer Networks
- Self-Organized/Healable (Bio-sourced/inspired/mimetic) π -Conjugated (Semi)Conducting & Ionically Conducting Materials
- Energy Conversion (AEMFCS/PEMFCs), Harvesting (TEGs/TECs/Hydrovoltaics), and Storage (Solid-State (μ)Batteries & Supercaps)
- Organic/Plastic & (Supra)Molecular (Opto)Electronics, Nanoionics/Nanofluidics, Iontronics
- Multi-Scale/Physics Structure/(Electronic/Ionic/Protonic) Transport Correlations through *ex/in situ* & *operando* (lab & large-scale facility-based) advanced characterizations & using devices as platforms to enable efficient feedback loops for (functional) materials design

o) Research Interests & Keywords

- Organic & (Supra/Macro)Molecular Chemistry: (Macro/Supra)Molecular Engineering Approaches & Synthetic Routes towards Oligomer, Homopolymer, Alternated/Precise Copolymer, Multi-block Molecules/Copolymer & Dendritic Functional Architectures
- 1D vs. 2D vs. 3D Self-Assembly of Functional Materials: Controlled Phase Segregation (Self-organization & Hierarchization) in (Multiblock) Functional Architectures based on Covalent & Non-Covalent (Ionic, H-Bonding, van der Waals...) Interactions
- π -Conjugated Materials: Organic Semiconductors (thiophene-based OSCs) & Organic Conductors (aniline-based OCs)
- Organic Single Crystals & Liquid Crystals (LCs): Molecular OSCs, Calamitic/Sanidic/Polycatenar Functional LC OSCs

- **Bio-sourced/inspired/mimetic OSCs**: DNA-OSC Hybrids, Self-Assembled Oligo(Peptide)s (Quantum Dots (QDs) & Nanotubes (NTs)), Proteins, (non-pathogenic) Amyloid fibers

- **Single-Ion Conducting Materials**: Homo/Block Co-polymers, Dynamic Covalent Adaptable Networks & Thermotropic ionic liquid crystals

- **Organic Mixed Ionic-Electronic Conductors (OMIECs)**: (Macro)Molecular & Hybrid (Organic/Inorganic) MIECs

- **Ionic/Electronic Transport & Optoelectronic Properties**: dc-Conductivity, Charge Carrier Mobility (SCLC/OFET), Electrochemical Impedance Spectroscopy (EIS), Electronic & Energy & Ionic Transfers

- **Optoelectronic, Iontronic and Energy Devices**: Organic Field-Effect Transistors (OFETs), Organic Solar Cells (Donor/Acceptor Heterojunctions), Organic ElectroChemical Transistors (OECTs), Solid-State (Gen. 4a/4b) Batteries, Onchip Batteries (μ Batteries), Supercaps, AEMFCs/PEMFCs

p) Recent/On Going National & International Funded Projects (Research Grants)

***French National Public/Private Joint Research Lab. on Electrochemical Energy Storage**

• **2022-2027**: Li^2 $\Rightarrow$ UMR5279-**LEPMI**/Blue Solutions (**BS**) Lithium & interface Lab.: Gen. 4B Lithium Metal Batteries
PI/Head of Li^2 : Prof. R. Bouchet (Grenoble-INP). Co-PI/Steering Committee Member: Dr. P. Rannou (CNRS)



***French National Centre of Scientific Research (CNRS): CNRS-PEPS-ENERGIE 2024**

• **2024-2025**: **NEXGENELECTROLYTES** $\Rightarrow$ Engineering the Next Generation of solid-state Electrolytes by reactive cold sintering
PI: Dr. M. Diaz-Lopez (CNRS). Co-PI: Dr. P. Rannou (CNRS)



***French National Agency of Research (ANR)**

• **2016-2022**: **GATE** $\Rightarrow$ Generic Approach To new organic semiconductors for Electronic applications

PI: Dr. M. Frigoli (CNRS). Co-PIs: Dr. P. Rannou (CNRS) & Dr. A. Yassar (CNRS)

• **2017-2021**: **BioNics** $\Rightarrow$ self-assembling proteins for Bio-Inspired Nano-electronics

PI: Dr. V. Forge (CEA). Co-PIs: Dr. P. Rannou (CNRS) & Dr. M. Holzinger (DCM) & Dr. A. Thuair (LETI)

• **2020-2025**: **MASTERMIND** $\Rightarrow$ MultiscAle STructure/propERTy relationship in Mixed (ionic/electronic) (macro)molecular coNDuctors: Towards new generation organic bioelectronics devices

PI: Dr. S. Sanaur (ENSMSE-CMP). Co-PIs: Dr. P. Rannou (CNRS), Dr. Y. Bonnassieux (X-Ecole Polytechnique)

• **2021-2025**: **SWEET-DISPLAY** $\Rightarrow$ A convenient approach to glycoamphiphiles as active layers of LCD-based biosensors

PI: Dr. S. Halila (CNRS). Co-PI: Dr. P. Rannou (CNRS)

• **2024-2028**: **BioVoIT** $\Rightarrow$ Protein nanofibrils for energy harvesting from ambient humidity

PI: Dr. V. Forge (CEA). Co-PI: Dr. P. Rannou (CNRS)

***Horizon Europe & Horizon 2020 Framework Programs of the European Community (H2020/Horizon Europe)**

• **2020-2024**: **HIDDEN (LC-BAT-14-2020)**, 1 of the 6 projects of the H2020-FET-Flagship large-scale initiative **Battery2030***

$\Rightarrow$ **HiInDering DENdrite** growth in lithium metal batteries (**HIDDEN**)

Partners: VTT, CNRS, CSEM, BFH, BELENOS CLEAN POWER HOLDING AG, SECIFIC POLYMERS, RTD TALOS LTD

PI: Dr. M. Vilkmann (VTT). Co-PI of **HIDDEN/PI** of the **CNRS+UGA** partner: Dr. P. Rannou (CNRS).

• **2022-2023**: **HOPES (H2020-MSCA-IF-2020)**

$\Rightarrow$ self-assembled/healable Hybrid inorganic/Organic Polymer Electrolytes for sustainable electrochemical energy Storage

PI: Dr. P. Rannou (CNRS). MSCA Fellow: Dr. H.H. Rana. Industrial Secondment @ **Specific Polymers**

• **2022-2026**: **SOLID (HORIZON-CL5-2021-D2-01-05)**, Manufacturing technology development for SSBs (Gen.4a-4b batteries)

$\Rightarrow$ Sustainable manufacturing & Optimized materials & interfaces for Lithium metal batteries with Digital quality control. (**SOLID**)

Partners: PULSEDEON OY, ABEE, RTD TALOS Ltd, AALTO UNIV., CNRS, UGA, SPECIFIC POLYMERS,

OCSIAL EUROPE SARL, ARMOR BATTERY FILMS, COATEMA COATING MACHINERY GMBH,

UNIVERZITA TOMASE BATI VE ZLINE, CENTRO RICERCA FIAT SCPA, CSEM, BFH

PI/ Dr. M. Vilkmann (VTT). Co-PI of **SOLID/Co-PIs** of the **CNRS+UGA** partner: Dr. M. Marechal (CNRS)+Dr. P. Rannou (CNRS)

• **2024-2025**: **CLICKBatt (Unite)** Seed Fund 2024: Seed Fund grant for the writing and submission of Horizon Europe proposals

$\Rightarrow$ **CLICK**-Chemistry enabled sustainable & safe-by-design (post-LiBs) solid-state Batteries

Partners: CNRS, POLITECNICO di TORINO (PoliTo: Prof. C. Gerbaldi), AALTO Univ. (Aalto: Prof. J. Ruokolainen), VTT (Dr. M. Vilkmann).

PI: Dr. P. Rannou (CNRS).

***ANR/NSF (France + USA): bilateral collaboration (NSF-PIRE)**

• **2016-2021**: **REACT** $\Rightarrow$ Research and Education in Active Coatings Technologies for human habitat

French PI: Dr. P. Rannou (CNRS) US PI: Pr. R.J. COMPOSTO (Univ. of Pennsylvania)

***PHC STAR (France + South Korea): bilateral collaboration (PHC STAR)**

• **2019-2022**: **PIONEER** $\Rightarrow$ Korea-France collaborative research cluster for Post-lithium-ION solid-state Electrochemical enERgy storage devices.

French PI: Dr. P. Rannou (CNRS). South Korean PI: Dr. P.J. Yoo (SKKU).

***FACCTS (France + USA): bilateral collaboration (French Chicago Center (FCC), the Embassy of France (USA) & Univ. of Chicago (U. Chicago))**

• **2020-2024**: **ILLINOIS (FACCTS 2020)** $\Rightarrow$ "Thermotropic Ionic Liquid crystal: Encoding dimensionality-controlled & NanocOnfined Ionic transport". French PI: Dr. P. Rannou (CNRS). US PI: Pr. P.F. Nealey (U. Chicago)

q) 11 Other Research Products

• **1**: "A universal method for achieving ultra-low contact resistances in organic electrochemical transistors" *Adv. Mater. Interfaces* **12**, 2025, e00208. DOI: [10.1002/admi.202500208](https://doi.org/10.1002/admi.202500208)

• **2**: "Controlling the nematic liquid crystallinity of cellulose nanocrystals with an alcohol ethoxy sulfonate surfactant", *Biomacromolecules* **25**(7), 2024, pp 3909-3919. DOI: [10.1021/acs.biomac.3c01375](https://doi.org/10.1021/acs.biomac.3c01375) **Cover picture**

• **3**: "UV-Vis-NIR optical properties of amyloid fibrils as a new light on amyloidogenesis", *Nat. Photon.* **13**(7), 2019, pp 473-479. DOI: [10.1038/s41566-019-0422-6](https://doi.org/10.1038/s41566-019-0422-6)

• **4**: "Dynamic self-assembly of DNA minor groove-binding ligand DB921 into nanotubes triggered by an alkali halide", *Nanoscale* **10**(12), 2018, pp 5550-5508. DOI: [10.1039/c7nr03875e](https://doi.org/10.1039/c7nr03875e)

• **5**: "A synthetic redox biofilm made from metalloprotein-prion domain chimera nanowires", *Nat. Chem.* **9**(2), 2017, pp 157-163. DOI: [10.1038/nchem.2616](https://doi.org/10.1038/nchem.2616)

• **6**: "Improvement of the Seebeck coefficient of PEDOT:PSS by chemical reduction and method for its transfer using free-standing thin films", *J. Mater. Chem. C* **2**(7), 2014, pp 1278-1283. DOI: [10.1039/C3TC31674B](https://doi.org/10.1039/C3TC31674B)

• **7**: "From block copolymer self-assembly, liquid crystallinity, and supramolecular concepts to functionalities", *Handbook of Liquid Crystals*, 2nd edition, Eds. J.W. Goodby, P.J. Collings, T. Kato, C. Tschierske, H. Gleeson, P. Raines, ISBN-13: 978-3-527-32773-7, Wiley-VCH, Weinheim, Germany, Vol.7: Supramolecular & Polymer Liquid Crystals, 2014, pp 541-598. DOI: [10.1002/9783527671403.hlc122](https://doi.org/10.1002/9783527671403.hlc122). **Invited Handbook Chap.**

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