

**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

10/99-present

Co-PI/Member of the Steering Committee of LEPMI/Blue Solutions' joint research lab **Li²** on energy storage **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 11**. 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 11 (Soft matter: synthesis, development, assemblies, structure, properties, functions) of **CNRS Chemistry** (CNRS's National Institute of Chemistry) since Oct. 2015. Till date (*i.e.* Oct. 2024), he has (co)advised **17** postdoctoral fellows, (co)supervised **13** PhD students and **>35** (under)graduate students. He is the (co)authors of **138** papers (**81** regular articles and **57** proceeding papers), **2** book chapters, and **17** (FR/EP/JP/US/CN/KRWO) 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: 138 publications (**81** regular articles & **57** proceeding papers), **2 book chapters** & **17** (FR/EP/JP/US/CN/KR/WO) **patents**. **Number of times cited & h index** [source: google scholar] > **5.8k & 36**

d) 10 Products closely related to Energy Conversion^{1,3-4,7,9}/**Storage**^{1-3,5-8,10} **Endeavors addressing UN SDG 7** 

•**1**: 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), 39345-39353 (2023). DOI: [10.1021/acsomega.3c04914](https://doi.org/10.1021/acsomega.3c04914)

•**2** 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)

•**3** 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).

•**4** A. Le Goff, Y. Nedellec, M. Holzinger, **P. Rannou**, V. Forge, "Ion exchange membrane". [WO/2021/0118983](https://doi.org/10.26434/chemrxiv-2021-0118983). [FR3099648](https://doi.org/10.26434/chemrxiv-2021-0118983). [EP4005000](https://doi.org/10.26434/chemrxiv-2021-0118983). [US20220263109](https://doi.org/10.26434/chemrxiv-2021-0118983). [CN114175326](https://doi.org/10.26434/chemrxiv-2021-0118983). [KR1020220041138](https://doi.org/10.26434/chemrxiv-2021-0118983). [JP2022542957](https://doi.org/10.26434/chemrxiv-2021-0118983)

•**5** L. Picard, T.F. Clement, **P. Rannou**, "Solid polymer electrolyte made of comb polymer". [EP3865533](https://doi.org/10.26434/chemrxiv-2019-008061). [FR3107276](https://doi.org/10.26434/chemrxiv-2019-008061). [US20210296699](https://doi.org/10.26434/chemrxiv-2019-008061). [CN113270638](https://doi.org/10.26434/chemrxiv-2019-008061)

•**6** T.F. Clement, L. Picard, **P. Rannou**, "Method for fluorinated polymer preparation by Ziegler Natta catalysis". [EP3763748](https://doi.org/10.26434/chemrxiv-2019-008061). [FR3097548](https://doi.org/10.26434/chemrxiv-2019-008061).

•**7** 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)

•**8** P. Overton, L. Picard, **P. Rannou**, "Sulfonamide macromolecules useful as single-ion conducting polymer electrolyte", [WO/2019/008061](https://doi.org/10.26434/chemrxiv-2019-008061). [FR3068693](https://doi.org/10.26434/chemrxiv-2019-008061). [EP3649107](https://doi.org/10.26434/chemrxiv-2019-008061). [US20200165197](https://doi.org/10.26434/chemrxiv-2019-008061)

•**9** 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)

•**10** L. Picard, G. Gebel, M. Leclère, H. Mendil, **P. Rannou**, "Electrolyte for electrochemical generator". [WO2017050769](https://doi.org/10.26434/chemrxiv-2017-050769). [FR3041358](https://doi.org/10.26434/chemrxiv-2017-050769). [EP3353262](https://doi.org/10.26434/chemrxiv-2017-050769). [US20180261886](https://doi.org/10.26434/chemrxiv-2017-050769).

e) Synergistic activities:

- 2018-present Co-organizer: grEnoble eNerGy conversioN & storagE (ENGINE) international winter school
Member of ENGINE2019 & ENGINE2021 & ENGINE2023 & ENGINE2025 Organizing Committee
- 2016-2022 Member of the HDR (habilitation) commission of the EDCSV (ED N°254), Graduate School of Chemistry and Life sciences of the University Grenoble Alpes (UGA).
- 2015-2021 French PI/Assoc. Director of international research for the ANR/NSF "PIRE" project REACT
Research and Education in Active Coatings Technologies for the Human Habitat
(NSF-OISE PIRE Grant # 1545884 and ANR Grant # ANR-15-PIRE-0001)
PI of the French partner (GIANT: 6 labs/18 faculties) for the French National Agency of Research (ANR)
Co-Leader of its ACT 3: "Self-assembled Nanomaterials for Energy Generation and Storage"
- 2013-2021 Co-organizer: on Organic Electronics International Summer School (OESS)
Member of OESS (2013/2014/2015/2017/2019/2021) Scientific/Steering Committee
Member of the OESS013'Organizing Committee: General co-chair (OESS2014), in charge of selecting/contacting its Invited Lecturers, of its Academic Funding/Support
- 2013-2022 Co-organizer: International Conference on Organic Electronics (ICOE)
Member of ICOE (2014/2015/2016/2017/2018/2019/ICOE2022) Scientific/Steering Committee
Member of the ICOE2013'Organizing Committee: Programme chair (ICOE2013), in charge of selecting/contacting its Invited Lecturers, of its Academic Funding/Support
- 2012-present Co-organizer: Minatec Summer Programme (MSP2011-2013) and Grenoble
International Internship Programme (2014/2015/2016/2017/2018/2019/2022/2023/GIIP2024) aiming at
International research experience for undergraduate students enrolled in US & Japanese universities.
Member of MSP & GIIP scientific/steering committee. Co-organizer: French American
Workshop (2012/2013/2014/2015/2016/2017/FAW2018/FAW2019/FAW2024) @ GIANT
- 2006-2022 Co-organizer: International Conference on Molecular Electronics (ElecMol). Member
of the ElecMol'Organizing Committee (2005->ElecMol2020): General chair ElecMol10/12, in charge of
selecting/contacting its Invited Lecturers, of its Academic Funding/Support
- 2004-2018 Scientific facilitator (With Dr. J-L. Fave) of a team of 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

f) 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. Drnec [ESRF-ID31 (France)], Prof. E. Drockenmuller [UMR5223-IMP (France)], Prof. Z. Fakhraai [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 Ruokalainen [Aalto Univ. (Finland)] Prof. S. Sanaur [ENS Mines de Saint-Etienne/CMP (France)], Dr. H. Uehara [Hitachi Chemical Co., Ltd (Japan)], Dr. M. Viikman [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)]

g) Graduate & Postdoctoral Advisors:

Dr. M. Nechstchein, 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

h) Thesis Advisor, Date [affiliations] (12 total): Bruno Dufour, 10/02 [Hutchinson (France)], Jean-Pierre Bonnet, 10/03 [UMR7314-LRCS (France)], Sirine Layount, 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. Popliment 05/24 (France)

i) Postdoctoral Associates [affiliations] (17 total): E.C. Castillon Gonzales (Spain), J. Champavert [UMR5249-LCBM (France)], 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. (Israël)], F. Oswald [CEA-Saclay (France)], François Poutier [UPR5301-CERMAV (France)], Amrit Puzari [GITM/Guwahati University & NIT Nagaland (India)], G. Sych [Edwards Vacuum (France)], and S. Zaioncz (Brazil)

j) Present Group:

PhDs (1): B. Deniger [*26].

k) Total Advisees Since 1999: Undergraduates: 19. M.Sc. Students: 16. PhD Students: 13. Postdoctoral Fellows: 17

l) Research Areas

- Circular chemistry towards functional (Multi-Block) Molecules, Macromolecules, Supramolecules, Supramacromolecules & Polymer Networks
- Self-Organized/Healable (Bio-sourced/inspired/mimetic) π -Conjugated (Semi)Conducting & Ionically Conducting Materials
- Energy Conversion (PEMFCs), Harvesting (TEGs/TECs/Hydrovoltaics), and Storage (Batteries & Supercaps)
- Organic/Plastic & (Supra)Molecular (Opto)Electronics, Nanionics/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

m) 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 Oligopeptides (QDs & NTs), Proteins, (non-pathogenic) Amyloid fibers
- Ion & Single-Ion Conducting Materials: Homo/Block Co-polymers, Dynamic Covalent Networks & Thermotropic Ionic LCs (TILCs)
- 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/4c) Batteries, Supercapacitors, PEMFCs

n) 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-ENERGIE2024

•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. Thuairé (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)

•2024-2027: BioVolt \Rightarrow Protein nanofibrils for energy harvesting from ambient humidity

PI: Dr. V. Frge (CEA). Co-PIs: Dr. P. Rannou (CNRS) & Dr. S. Boisseau (CEA)

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

•2022-2024: 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

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

\Rightarrow HInDering DENdrite growth in lithium metal batteries (HIDDEN)

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

•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)

PI/ Dr. M. Vilkmán (VTT). Co-PI of Solid/Co-PIs of the CNRS+UGA partner: Dr. M. Marechal (CNRS)+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), Embassy of France (USA) & U. Chicago (USA))

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

o) 12 Other Significant Products

•1: "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

•2: "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: "Impact of charge carrier injection/extraction performances in low-dimension PEDOT:PSS organic electrochemical transistors", *Adv. Electron. Mater.* **9**(1), 2023, 2201067. DOI: [10.1002/aelm.202201067](https://doi.org/10.1002/aelm.202201067)

•4: "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)

•5: "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)

•6: "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)

•7: "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)

•8: "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)

•9: "The Influence of polymer purification on photovoltaic device performance of a series of indacenodithiophene donor polymers", *Adv. Mater.* **25**(14), 2013, 2029-2034. DOI: [10.1002/adma.201300027](https://doi.org/10.1002/adma.201300027)

•10: "Delineating poly(aniline) redox chemistry using tailored oligo(aryleneamine)s: Towards oligo(aniline)-based organic semiconductors with tunable optoelectronic properties", *Chem. Eur. J.* **17**(44), 2011, pp 12512-12521. DOI: [10.1002/chem.201101697](https://doi.org/10.1002/chem.201101697)

•11: "Self-assembly and hierarchies in pyridine-containing, homopolymers and block copolymers with hydrogen-bonded cholesteric side-chains", *Macromolecules* **43**(3), 2010, 1507-1514. DOI: [10.1021/ma9021604](https://doi.org/10.1021/ma9021604)

•12: "Processible conjugated polymers: From organic semiconductors to organic metals and superconductors", *Prog. Polym. Sci.* **27**(1), 2002, pp 135-190. DOI: [10.1016/S0079-6700\(01\)00043-0](https://doi.org/10.1016/S0079-6700(01)00043-0) Invited Review