

CURRICULUM VITAE

Dr. Fabrice MATHEVET

Nationality: French

Position: CNRS Research Director

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Education:

2002 **Ph.D. in organic chemistry and materials science**, University of Strasbourg: a 3 years project at IPCMS-CNRS, funded by **French Research Ministry** (interrupted by 1 year of **Military Service**)

1998 **Master of Molecular chemistry**, University of Grenoble, **specialization in Chemistry of materials**

Professional Experiences:

2020-present **CNRS secondment** to Center for Organic Photonics and Electronics Research OPERA, Kyushu University, Fukuoka, **Japan**.

2017 **Visiting Professor** (3 months), Kyushu University, Fukuoka, **Japan**.

2016 **Visiting Professor** (3 months), Kyushu University, Fukuoka, **Japan**.

2015 **Visiting Professor** (3 months), Kyushu University, Fukuoka, **Japan**.

2010-2018: **Invited Lecturer** at “École Nationale Supérieure de Techniques Avancées” ENSTA (engineering school), **Paris**.

2007-present: **CNRS Researcher** (Permanent Position) at Paris Institute of Molecular Chemistry (IPCM UMR CNRS 8232), Sorbonne University, **Paris**.

2005-2006: **CEA Researcher** (Post-Doctoral Position) at the Laboratory of Organic and Hybrid Molecular Electronics (LEMOH), French Atomic Energy Commission CEA, **Grenoble**.

2003-2005: **UPMC Researcher** (Post-Doctoral Position) at Pierre & Marie Curie University (UPMC) funded by French Environment and Energy Management Agency ADEME, **Paris**.

Research Topics abstract: Our multidisciplinary research interests are centered on chemical engineering approaches for the design and preparation of novel organic π -conjugated and hybrid materials for photonics and electronics. At the interface of chemistry, materials science, and physics, the research activities involve organic and polymer synthesis with controlled architectures, surface chemistry, nano-patterning and self-assembly, and material characterizations. More precisely, our research interests are related to non linear optics, organic thin film transistors, organic light emitting diodes, organic photovoltaic cells and organic lasers. Moreover, ongoing projects deal with nano-photonics and optoelectronics. The goals are to further the understanding of the structure/properties relationships of materials developed in the group.

Key words: Molecular design; synthesis of π -conjugated (macro)molecular materials; Synthesis of hybrid materials, Supramolecular chemistry; 2D and 3D self-organization (Self-assembled monolayers, liquid crystals, ...); Applications to organic (nano)photonics and (nano)electronics; Organic light emitting devices; Organic Field Effect Transistors; Organic Photovoltaic Cells;...

Skills: Multi-step synthesis (under dry conditions); molecular and macromolecular synthesis and characterizations; Analysis: Polarised Optical Microscopy, Differential scanning calorimetry, X-ray diffraction, photophysics; Spectrometry and spectroscopy: NMR, FTIR, UV-Vis, MS; Chromatography: column chromatography (silica, alumina), HPLC, SEC. Organic thin film processing and characterizations (STM, AFM, GIWAXS,...). Characterization of charge transport properties in organic semiconductor, fabrication of organic optoelectronic devices.

Selected publications (10):

1. L. Chen, C. Li, E. Fu, M. Li, Y. Kuboi, Z.-Y. Li, Z. Chen, J. Chen, X. Liu, X. Tang, F. Maurel, C. Adachi, F. Mathevet, S. Zhang. **A Novel Donor-Acceptor Cage for Thermally Activated Delayed Fluorescence: Toward a New Kind of TADF Exciplex Emitters.** *ACS Materials Lett.* **2023**, 5, 1450-1455.
2. Z. Feng, T. Ishii, G. Tumen-Ulzii, X. Liu, X. Tang, G. F. Harrington, B. Heinrich, J.-C. Ribierre, L.-M. Chamoreau, L. Sosa Vargas, D. Kreher, K. Goushi, T. Matsushima, G. Zhou, F. Mathevet, C. Adachi. **Artificial p-n-like junction based on pure 2D organic-inorganic halide perovskite structure having naphthalene diimide acceptor moieties.** *Adv. Opt. Mater.*, **2023**, 11, 2202734.
3. X. Zhu; C. Hessin, A. Salamé, L. Sosa-Vargas, D. Kreher, C. Adachi, A. Proust, P. Mialane, J. Marrot; A. Bouchet, M. Sliwa, S. Méry, B. Heinrich, F. Mathevet, G. Izzet, **Photoactive Organic/Inorganic Hybrid Materials with Nanosegregated Donor-Acceptor Arrays.** *Angewandte Chemie*, **2021**, 60, 8416-8424.
4. T. Ishii, F. Bencheikh, S. Forget, S. Chénais, B. Heinrich, D. Kreher, L. Sosa Vargas, K. Miyata, K. Onda, T. Fujihara, S. Kéna-Cohen, F. Mathevet, C. Adachi, **Enhanced Light-Matter Interaction and Polariton Relaxation by the Control of Molecular Orientation.** *Adv. Optical Mater.* **2021**, 9, 2101048.
5. X. Liu, X. Su, C. Livache, L.-M. Chamoreau, S. Sanaur, L. Sosa-Vargas, J.-C. Ribierre, D. Kreher, E. Lhuillier, E. Lacaze, F. Mathevet, **Investigation of charge transport properties of [1]Benzothieno[3,2-b][1]-benzothiophene single-crystals in field-effect transistor configuration.** *Organic Electronics*, **2020**, 78, 105605.
6. M. Auffray, D. H. Kim, J. Uk Kim, F. Bencheikh, D. Kreher, Q. Zhang, A. D'Aléo, J.-C. Ribierre, F. Mathevet, C. Adachi, **Dithia[3.3]paracyclophane Core: a Versatile Platform for Fine Triplet State Tuning and Through Space TADF Emission.** *Chemistry –An Asian Journal*, **2019**, 14, 1921-1925.
7. J.-C. Ribierre, L. Zhao, X. Liu, E. Lacaze, B. Heinrich, S. Mery, P. Sleczkowski, Y. Xiao, F. Lafalet, D. Hashizume, T. Aoyama, M. Uchiyama, J. W. Wu, E. Zaborova, F. Fages, A. D'Aléo, F. Mathevet, C. Adachi, **A solvent-free and vacuum-free melt-processing method to fabricate highly crystalline organic semiconducting layers for organic electronic applications.** *J. Mater. Chem. C*, **2019**, 7, 3190-3198.
8. Y. Xiao, D. Zeng, L. M. Mazur, A. Castiglione, E. Lacaze, B. Heinrich, B. Donnio, D. Kreher, A.-J. Attias, J.-C. Ribierre, F. Mathevet, **A new class of nanostructured supramolecular organic semiconductors based on intertwined multi-lamellar co-assemblies in π -conjugated liquid-crystalline side-chain polymers.** *Polymer Journal*, **2017**, 49, 31-39.
9. Y. Xiao, X. Su, L. Sosa-Vargas, E. Lacaze, B. Heinrich, B. Donnio, D. Kreher, F. Mathevet, A.-J. Attias, **Chemical engineering of Donor-Acceptor Liquid Crystalline Dyads and Triads for the controlled nanostructuring of organic semiconductors.** *CrystEngComm.*, **2016**, 18, 4787-4798.
10. Zeng, Danli; Tahar-Djebbar, Ibtissam; Xiao, Yiming; Kameche, Farid; Kayunkid, Navaphun; Brinkmann, Martin; Guillon, Daniel; Heinrich, Benoît; Donnio, Bertrand; Ivanov, Dimitri A.; Lacaze, Emmanuelle; Kreher, David; Mathevet, Fabrice; Attias, André-Jean. **Intertwined Lamello-Columnar Coassemblies in Liquid-Crystalline Side-Chain π -Conjugated Polymers: Toward a New Class of Nanostructured Supramolecular Organic Semiconductors.** *Macromolecules* **2014**, 47, 1715-1731.