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KEY WORDS

Electron Paramagnetic
Resonance (EPR),
heterogeneous catalysis,
combined in-situ studies
(DRUV-Vis,
photoluminescence,
Raman with EPR),
toxicochemistry,
coordination chemistry

BIOGRAPHY

Dr. Frédéric Averseng obtained his PhD in transition metal chemistry in the Université Paul Sabatier (Laboratoire de Chimie de Coordination, Toulouse, France) in 2000. After post-doctoral fellowships in Lübeck, Germany (Institut für Physik, 2001-02) then Lyon, France (Ecole Normale Supérieure, 2002-03), he joined in 2003 the Laboratoire de Réactivité de Surface (LRS, Sorbonne Université, France) as an assistant professor.

RESEARCH INTEREST

Investigating the chemical nature of the active sites of transition metal-doped heterogeneous catalysts by in-situ molecular spectroscopies, using mainly Electron Paramagnetic Resonance (EPR) and Diffuse reflectance UV-vis (DRUV-Vis) spectroscopy. Study of the production of Reactive Oxygen species (ROS) by oxide materials in solution (Toxicochemistry or Depollution).

RELEVANT PUBLICATIONS

"Influence of the Preparation Procedure of Vanadium-Containing SiBEA Zeolites on Their Catalytic Activity in Propene Epoxidation", A. Held, J. Kowalska-Kus, Y. Millot, F. Averseng, C. Calers, L. Valentin, S. Dzwigaj, J. Phys. Chem. C (2018), 122(32), 18570-18582.

DOI:10.1021/acs.jpcc.8b05731 "Investigating the DMPO-formate spin trapping method for the study of paper iron gall ink corrosion", A. Gimat, V. Kasneryk, A-L. Dupont, S. Paris, F. Averseng, J. Fournier, P. Massiani, V. Rouchon, New J. Chem. (2016), 40(11), 9098-9110.

DOI:10.1039/C6NJ01480A "Effect of postsynthesis preparation procedure on the state of copper in CuBEA zeolites and its catalytic properties in SCR of NO with NH₃", R. Baran, F. Averseng, D. Wierzbicki, K. Chalupka, J-M. Krafft, T. Grzybek, S. Dzwigaj, Appl. Catal., A (2016), 523, 332-342. DOI:10.1016/j.apcata.2016.06.008

"Incorporation of Mo into the Vacant T-Atom Sites of the Framework of BEA Zeolite as Mononuclear Mo Evidenced by XRD and FTIR, NMR, EPR, and DR UV-Vis Spectroscopies", R. Baran, F. Averseng, Y. Millot, T. Onfroy, S. Casale, S. Dzwigaj, J. Phys. Chem., C (2014), 118(8), 4143-4150. DOI:10.1021/jp410016g "ZnO Oxygen Vacancies Formation and Filling Followed by in Situ Photoluminescence and in Situ EPR", C. Drouilly, J-M. Krafft, F. Averseng, S. Casale, D. Bazer-Bachi, C. Chizallet, V. Lecocq, H. Vezin, H. Lauron-Pernot, G. Costentin, J. Phys. Chem., C (2012), 116(40), 21297-21307.

DOI:10.1021/jp307693y



Azaïs Thierry

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Matière Condensée

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thierry.azais@upmc.fr

KEY WORDS

RMN - Matériaux-
Encapsulation

BIOGRAPHY

Thierry Azaïs was graduated in Chemistry from University Pierre et Marie Curie (UPMC) in Paris in 1998, before staying to study for his PhD in the Laboratory « Chimie de la Matière Condensée de Paris » (LCMCP), under the supervision of Prof. Christian Bonhomme. He completed a thesis entitled “Synthesis and multinuclear solid-state NMR study of “Al-O-P” clusters, models of secondary building units of microporous materials”, graduating in 2001.

After postdoctoral research at the University of Jena in the group of Prof. Anne S. Ulrich, he became an Assistant Professor at the Department of Chemistry, UPMC, and joined the group “Sol-Gel Materials and NMR” headed by Florence Babonneau in 2002.

RESEARCH INTEREST

His research focuses on the application of multinuclear solid-state NMR techniques to the study of interfaces in hybrid materials. Current interests include hybrid mesoporous silica, host-guest materials for drug delivery applications, collagen/apatite composites for tissue engineering and natural biomaterials such as bone and nacre. He has authored over 50 publications.

RELEVANT PUBLICATIONS

Water-mediated structuring of bone apatite. Yan Wang, Stanislas Von Euw, Francisco M. Fernandes, Sophie Cassaignon, Mohamed Selmane, Guillaume Laurent, Gérard Pehau-Arnaudet, Cristina Coelho, Laure Bonhomme-Courty, Marie-Madeleine Giraud-Guille, Florence Babonneau, Thierry Azaïs and Nadine Nassif. *Nature Materials* 2013, 12, 1144-1153

Impact of collagen confinement vs. ionic substitutions on the local disorder in bone and biomimetic apatites. Yan Wang, Stanislas Von Euw, Guillaume Laurent, Charlène Crevant, Laure Bonhomme-Courty, Marie-Madeleine Giraud-Guille, Florence Babonneau, Nadine Nassif and Thierry Azaïs. *Mater. Horiz.*, 2014, 1, 224-231.

Vertebral Development and Ossification in the Siberian Sturgeon (*Acipenser Baerii*), with New Insights on Bone Histology and Ultrastructure of Vertebral Elements and Scutes. A. Leprévost, T. Azaïs, M. Trichet, J-Y. Sire *The Anatomical Record* 2017, 300, 437-449

Amorphous surface layer versus transient amorphous precursor phase in bone - A case study investigated by solid-state NMR spectroscopy. S. Von Euw, W. Ajili, T-H. C. Chan-Chang, A. Delices, G. Laurent, F. Babonneau, N. Nassif, T. Azaïs *Acta Biomaterialia* 2017, 59, 351-360

The interplay between calcite, amorphous calcium carbonate and intra-crystalline organics in sea urchin skeletal elements. Marie Albéric, Elad N. Caspi, Andrew Fitch, Mathieu Bennet, Widad Ajili, Nadine Nassif, Thierry Azaïs, Alex Berner, Peter Fratzl, Emil Zolotoyabko, Luca Bertinetti, Yael Politi, *Crystal Growth and Design*, 2018



Bertrand Benoît

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KEY WORDS

biorganometallics, cancer
therapy, biocatalysis, gold

BIOGRAPHY

Benoît Bertrand has completed a double PhD degree in chemistry between the University of Burgundy (Dijon, France) and the University of Groningen (The Netherlands) under the supervision of Prof. Le Gendre and Prof. Casini on gold compounds as anticancer agents. After a post-doctoral time at the University of East Anglia (Norwich, UK) in Prof. Bochmann's group working on cyclometalated Au(III) complexes, he joined Sorbonne Université (Paris, France) in Prof. Thorimbert's group.

RESEARCH INTEREST

Synthesis of organometallic complexes conjugated to biomolecules (peptides, antibodies, DNA,...) for the development of selective anticancer therapies and biocatalytic methodologies.

RELEVANT PUBLICATIONS

Gold(III) complexes for anti-tumour applications: an overview B. Bertrand, M. R. M. Williams, M. Bochmann, Chem. Eur. J. 2018, 24, 11840-11851. A gold(III) pincer ligand scaffold for the synthesis of binuclear and bioconjugated complexes: synthesis and anticancer potential B. Bertrand, M. A. O'Connell, Z. A. E. Waller, M. Bochmann, Chem. Eur. J. 2018, 24, 3613-3622. Cytotoxicity of pyrazine-based cyclometalated (C^{Np}z^C)Au(III) carbene complexes: Impact of the nature of the ancillary ligand on the biological properties B. Bertrand, J. Fernandez-Cestau, J. Angulo, M. M. D. Cominetti, Z. A. E. Waller, M. Searcey, M. A. O'Connell, M. Bochmann, Inorg. Chem. 2017, 56, 5728-5740. Caffeine-based gold(I) N-heterocyclic carbenes as possible anticancer agents: synthesis and biological properties B. Bertrand, L. Stefan, M. Pirrotta, D. Monchaud, E. Bodio, P. Richard, P. Le Gendre, E. Warmerdam, M. H. de Jager, G. M. Groothuis, M. Picquet, A. Casini, Inorg. Chem. 2014, 53, 2296-2303. Gold(I) NHC based homo and heterobimetallic complexes: synthesis, characterization and evaluation as potential anticancer agents B. Bertrand, A. Citta, I. L. Franken, M. Picquet, A. Folda, V. Scalcon, M. P. Rigobello, P. Le Gendre, A. Casini, E. Bodio, J. Biol. Inorg. Chem. 2015, 20, 1005-1020.



Beugnon Jérôme

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KEY WORDS

Quantum gases. Quantum optics. Topological quantum matter. Superfluids

BIOGRAPHY

Short CV

Since 2008 : Associate Professor at Université Pierre et Marie Curie, Paris

2007-2008 : Postdoc at Laboratoire Aime Cotton, Orsay : Landau-Zener transitions in frozen pairs of Rydberg atoms

2004-2007 : PhD at Institut d'Optique, Palaiseau. Two-photon interference between single photons emitted by single atoms and coherent manipulation of single atoms.

RESEARCH INTEREST

Research

Main topic : ultracold quantum gases

Ongoing projects :

- Two-dimensional Bose gases (Rubidium experiment)
- Artificial gauge fields with neutral atoms (Ytterbium experiment)

RELEVANT PUBLICATIONS

<http://www.lkb.upmc.fr/boseeinsteinsondensates/beugnon/>



Blanchard Juliette

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KEY WORDS

catalysis preparation of
catalysts characterization
of surface sites solid state
NMR XAS acidity cascade
catalysis

BIOGRAPHY

1993-1997 PhD degree in Chemistry, UPMC Paris. Thesis title "Study of hydrolysis-condensation reactions of titanium (IV) alkoxides" -Nov 97- sept 98 : Post-doctoral position at the Institut für anorganische Chemie. Johann Wolfgang Goethe Universität -since 1999 : associate researcher at the CNRS (Centre National de Recherche Scientifique) 2011 : Habilitation, UPMC, Paris. Thesis title "Interventions of the support during catalysts preparation and catalytic reaction "

RESEARCH INTEREST

-Preparation of material for catalysis: preparation of support of controlled properties (acidity, porosity) and nanoarchitecture - Metal-oxide support interaction at the early stage of catalysts preparation - Understanding and improving the acid properties of amorphous silica-alumina -oxide nanocomposites for application in bifunctional catalysis

RELEVANT PUBLICATIONS

1. Ben Moussa, O., et al., Heteroaggregation and Selective Deposition for the Fine Design of Nanoarchitected Bifunctional Catalysts: Application to Hydroisomerization. ACS Catalysis, 2018. 8(7): p. 6071-6078. DOI: 10.1021/acscatal.8b01461
2. Samad, J.E., et al., The controlled synthesis of metal-acid bifunctional catalysts: Selective Pt deposition and nanoparticle synthesis on amorphous aluminosilicates. Journal of Catalysis, 2016. 342: p. 213-225. DOI: <http://dx.doi.org/10.1016/j.jcat.2016.08.002>
3. Samad, J.E., et al., The controlled synthesis of metal-acid bifunctional catalysts: The effect of metal:acid ratio and metal-acid proximity in Pt silica-alumina catalysts for n-heptane isomerization. Journal of Catalysis, 2016. 342: p. 203-212. DOI: <http://dx.doi.org/10.1016/j.jcat.2016.08.004>
4. Hervier, A., et al., The genesis of a heterogeneous catalyst: in situ observation of a transition metal complex adsorbing onto an oxide surface in solution. Chemical Communications, 2014. 50(19): p. 2409-2411. DOI: 10.1039/c3cc48838a
5. Blanchard, J., et al., On the influence of water traces on the acidity measurement of amorphous aluminosilicates. Catalysis Today, 2014. 226(0): p. 89-96. DOI: <http://dx.doi.org/10.1016/j.cattod.2013.10.054>



Boujday Souhir

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KEY WORDS

Surface functionalization,
Molecular approach of
biosensors, Metallic
Nanoparticles and Surface
Plasmon Resonance,
Biomolecules-Surfaces
Interaction, Solid-Liquid
Interface, Self Assembled
Monolayers, Surface
Nanostructuration,
Molecular Recognition,

BIOGRAPHY

Professor of Chemistry at Sorbonne University, Laboratory of Surface Reactivity. She graduated from UPMC with a Ph.D. in Chemistry in 2002 on molecular recognition on silica surface during catalysts preparation. After 2 post-doc, on wood preservation then on polyoxometalates, she joined UPMC in 2004 as Asst Prof where she developed the Biosensors axis. She defended her Habilitation to research supervision "Surface nanostructuration and molecular recognition at the solid/liquid Interface" in 2012

RESEARCH INTEREST

Through a molecular approach we optimize the functionalization of material surfaces and their interaction with biomolecules for applications in biosensing and drug delivery. We rely on the combination of surface characterization techniques such as XPS, AFM, PM-IRRAS, QCM-D, and SPR to investigate the interaction and ensure the optimal efficiency of the resulting material. We explore planar surfaces through self-assembled monolayers formation and metallic nanoparticles of various sizes, compositions and shapes for plasmonic and colorimetric biosensing.

RELEVANT PUBLICATIONS

Gold nanoparticle-based localized surface plasmon immunosensor for staphylococcal enterotoxin A (SEA) detection, Ben Haddada M., Hu D., Salmain, M., Zhang Lu, Peng C., Wang Y, Liedberg, B; Boujday S.*, Anal Bioanal Chem, 2017, 409 (26), 6227-6234
<http://dx.doi.org/10.1007/s00216-017-0563-8>
Gold Nanoparticles Assembly on Silicon and Gold Surfaces: Mechanism, Stability, and Efficiency in Diclofenac Biosensing, Ben Haddada M., Huebner M., Casale S.; Knopp D., Niessner R., Salmain, M.; Boujday S.*, J Phys Chem C, 2016, 120(51), pp29302-29311,
<http://dx.doi.org/10.1021/acs.jpcc.6b10322>
An Experimental and Theoretical Approach to Investigate the Effect of Chain Length on Amino thiols Adsorption and Assembly on Gold, Bedford, E.; Humblot, V.; Méthivier, C.; Gu, F.; Pradier, C-M., Tielens, F., Boujday, S., Chemistry, A European Journal, 2015, 21(41), pp 14555-14561.
<http://dx.doi.org/10.1002/chem.201500653>
Layer-by-layer generation of PEG-based regenerable immunosensing surfaces for small-sized analytes.
Huebner, M.; Ben Haddada, M., Méthivier, C.; Niessner, R.; Knopp, D.; Boujday, S., Biosensors & Bioelectronics, 2015, 67, 334-341; <http://dx.doi.org/10.1016/j.bios.2014.08.047>
The genesis of a heterogeneous catalyst: in-situ observation of a transition metal complex adsorbing onto an oxide surface in solution. Hervier, A., Blanchard, J., Costentin, G., Regalbuto, J., Louis, C., Boujday, S., Chemical Communication, 2014, 2409-2411,
<http://dx.doi.org/10.1039/C3CC48838A>



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KEY WORDS

Laser Physics, Atomic Physics, Atomic Spectroscopy, Ultrafast Non Linear Optics, Soliton formation, Quantum Optics, Generation of Non-Classical Light and Squeezed states, Nano-photonics, single photon sources, semiconductor nanocrystals, quantum dots, exciton-polariton physics, polariton quantum fluids

BIOGRAPHY

Alberto Bramati, Full Professor at SU, Member of the Institut Universitaire de France. He received his PhD in physics in 1998 at Sorbonne Université. He is co-author of more than 100 articles in international journals (h-index 34, 4600 citations), two books chapters and gave several invited talks in international conferences and various tutorials in international schools. He supervised 11 PhD students.

RESEARCH INTEREST

His main research topics are in Quantum Information and Nano-Photonics. In the last years he focused on the study of polariton systems and semiconductor nanocrystals obtaining several pioneering results: among them, the first demonstration of polariton superfluidity, hydrodynamic dark solitons and polarized single photon sources. He is co-author of more than 100 articles in international journals (h-index 34, 4600 citations) <http://www.lkb.upmc.fr/quantumoptics/>

RELEVANT PUBLICATIONS

1. A. Amo, S. Pigeon, D. Sanvitto, V.G. Sala, R. Hivet, I. Carusotto, F. Pisanello, G. Leménager, R. Houdré, E. Giacobino, C. Ciuti & A. Bramati, Science, 332, 1167 (2011) : Polariton Superfluids reveal Quantum Hydrodynamical Solitons, 2. A. Amo, T.H.C Liew, C. Adrados, A.V. Kavokin, R. Houdré, E. Giacobino and A. Bramati, Nature Photonics, 4, 361 (2010) : Exciton-Polariton Spin Switches, News&Views 3. A. Amo, J. Lefrère, S. Pigeon, C. Adrados, C. Ciuti, I. Carusotto, R. Houdré, E. Giacobino, and A. Bramati, Nature Physics, 5, 805 (2009) : Superfluidity of polaritons in semiconductor microcavities, 4. F. Pisanello, L. Martiradonna, G. Leménager, P. Spinicelli, A. Fiore, J. P. Hermier, L. Manna, R. Cingolani, E. Giacobino, M. De Vittorio, and A. Bramati, Appl. Phys. Lett. 96, 033101(2010) : Room temperature-dipole like single photon source with a colloidal dot-in-rod 5. F. Pisanello, G. Leménager, L. Martiradonna, L. Carbone, S. Vezzoli, P. Desfonds, P.D. Cozzoli, J.P. Hermier, E. Giacobino, R. Cingolani, M. DeVittorio & A. Bramati, Advanced Materials, 25, 1974 (2013) : Non-blinking single photon generation with anisotropic colloidal nanocrystals : toward Room-temperature efficient colloidal quantum sources



Costentin Guylène

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KEY WORDS

acid base catalysis, NMR,
FTIR, DRIFT, EPR,
hydroxyapatite, alkaline
earth oxides, zinc oxide,
hydrotalcite

BIOGRAPHY

Dr. Guylène Costentin (CNRS Research Director) is an expert in heterogeneous catalysis by oxides with applications in the field of depollution and energy. She develops in situ and operando characterizations to rationalize the structure-activity relationships on basic oxides. She received in 2004 the Award of the Division section of Catalysis of the French Chemical Society, has published over 75 papers and is involved in several international academic or industrial collaborations.

RESEARCH INTEREST

oxidation and acid base heterogeneous catalysis,
characterization of hydroxyapatites

RELEVANT PUBLICATIONS

Incorporation of Vanadium in the Framework of Hydroxyapatites: Importance of the Vanadium Content and pH Conditions during the Precipitation Step. S. Petit, T. Gode, C. Thomas, S. Dzwigaj, Y. Millot, D. Brouri, J.M. Krafft, G. Rousse, C. Laberty-Robert, G. Costentin Phys. Chem. Chem. Phys., 2017, 19, 9630 – 9640
<http://dx.doi.org/10.1039/C6CP08782E> Control of calcium accessibility over hydroxyapatite by post precipitation steps: influence on the catalytic reactivity toward alcohols. M. Ben Osman, S. Diallo Garcia, J.M. Krafft, C. Méthivier, J. Blanchard, T. Yoshioka, J. Kubo, G. Costentin Phys. Chem. Chem. Phys., 2016, 18, 27837 – 27847
<http://dx.doi.org/10.1039/C6CP05294K> Molecular Understanding of the Bulk Composition of Crystalline Nonstoichiometric Hydroxyapatites: Application to the Rationalization of Structure–Reactivity Relationships M. Ben Osman, J.M. Krafft, Y. Millot, F. Averseng, T. Yoshioka, J. Kubo, G. Costentin, Eur. J. Inorg. Chem. 2016(17), 2709–2720, (2016) <https://doi.org/10.1002/ejic.201600244> Discrimination of surface and bulk structure of crystalline hydroxyapatite nanoparticles by NMR M. Ben Osman, S. Diallo-Garcia, V. Herledan, D. Brouri, T. Yoshioka, J. Kubo, Y. Millot, G. Costentin J. Phys. Chem. C, 119, 23008–23020, (2015) DOI: 10.1021/acs.jpcc.5b08732 Identification of Surface Basic Sites and Acid-Base Pairs of Hydroxyapatite S. Diallo-Garcia, M. Ben Osman, J.M. Krafft, S. Casale, C. Thomas, J. Kubo, G. Costentin J. Phys. Chem. C 118(24), 12744–12757, (2014) <https://doi.org/10.1021/jp500469x>



Delande Dominique

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KEY WORDS

Transport Localization
Disordered systems
Quantum chaos Anderson
localization Complex
quantum systems

BIOGRAPHY

1977-1981 : Student at Ecole Normale Supérieure (Paris)
1981-1991 : Chargé de Recherche at CNRS since 1991 :
Directeur de Recherche at CNRS Since 1979, at Laboratoire
Kastler-Brossel) (previously named Laboratoire de
Spectroscopie Hertzienne de l'ENS)

RESEARCH INTEREST

<http://www.lkb.upmc.fr/complexquantumsystems/> Physics
of complex quantum systems Disordered systems
Transport and localization Anderson localization

RELEVANT PUBLICATIONS

1) D. Delande and J.C. Gay, Phys. Rev. Lett. 57, 2006
(1986): Quantum Chaos and Statistical Properties of
Energy Levels: Numerical Study of the Hydrogen Atom in a
Magnetic Field 2) C.H. Lu, G.R. Welch, M.M. Kash, D.
Kleppner, D. Delande and J.C. Gay, Phys. Rev. Lett. 66, 145
(1991): The diamagnetic Rydberg atom : confrontation of
calculated and observed spectra 3) T. Jonckheere, C.A.
Mueller, R. Kaiser, C. Miniatura and D. Delande, Phys. Rev.
Lett. 85, 4269 (2000): Multiple scattering of light by atoms
in the weak localization regime 4) J. Chabé, G. Lemarié, B.
Grémaud, D. Delande, P. Szriftgiser and J.C. Garreau,
Phys. Rev. Lett. 101, 255702 (2008): Experimental
observation of the Anderson metal-insulator transition
with atomic matter waves 5) M. Pasek, G. Orso and D.
Delande, Phys. Rev. Lett. 118, 170403 (2017): Anderson
Localization of Ultracold Atoms: Where is the Mobility
Edge?



Diederichs Carole

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KEY WORDS

1. Semiconductor physics 2. Optical spectroscopy 3. Quantum optics 4. Nanophotonics 5. Microcavity polaritons 6. Self-assembled semiconductor quantum dots 7. All-inorganic perovskite nanocrystals 8. Single photon emission 9. Photon indistinguishability 10. Resonance fluorescence of single emitters

BIOGRAPHY

Carole Diederichs graduated from University Pierre and Marie Curie (UPMC, now Sorbonne University) in 2007 with a PhD in Quantum Physics, for which she received the Michelin Young Researcher Award from the French Society of Physics. After her postdoc at MIT in the USA, she joined UPMC as an Associate Professor in 2008 to work in Laboratoire Pierre Aigrain (LPA). She is currently a Visiting Associate Professor at NTU in the group of Prof. Qihua Xiong and a member of MajuLab in Singapore.

RESEARCH INTEREST

The research activity of C. Diederichs at LPA focuses on the resonance fluorescence spectroscopy of single emitters such as epitaxial quantum dots and on quantum optics experiments for the measurement of the emission statistics and the indistinguishability degree of the emitted photons. At NTU, she studies the strong light-matter coupling and the single photon emission in all-inorganic perovskite nanostructures for polaritonics and quantum photonics. <http://www.lpa.ens.fr/spip.php?rubrique201>

RELEVANT PUBLICATIONS

[1] Room-Temperature Polariton Lasing in All-Inorganic Perovskite Nanoplatelets, R. Su, C. Diederichs, J. Wang, T. C. H. Liew, J. Zhao, S. Liu, W. Xu, Z. Chen, and Q. Xiong, Nano Letters 17, 3982 (2017).
<https://pubs.acs.org/doi/10.1021/acs.nanolett.7b01956> [2] Measuring the photon coalescence time window in the continuous-wave regime for resonantly driven semiconductor quantum dots, R. Proux, M. Maragkou, E. Baudin, C. Voisin, Ph. Roussignol, and C. Diederichs, Phys. Rev. Lett. 114, 067401 (2015).
<https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.114.067401> [3] Optically gated resonant emission of single quantum dots, H. S. Nguyen, G. Sallen, C. Voisin, Ph. Roussignol, C. Diederichs, and G. Cassaboïs, Phys. Rev. Lett. 108, 057401 (2012).
<https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.108.057401> [4] Ultra-coherent single photon source, H. S. Nguyen, G. Sallen, C. Voisin, Ph. Roussignol, C. Diederichs, and G. Cassaboïs, Appl. Phys. Lett. 99, 261904 (2011).
<https://aip.scitation.org/doi/abs/10.1063/1.3672034?journalCode=apl> [5] Parametric oscillation in vertical triple microcavities, C. Diederichs, J. Tignon, G. Dasbach, C. Ciuti, A. Lemaître, J. Bloch, Ph. Roussignol, and C. Delalande, Nature 440, 904, (2006).
<https://www.nature.com/articles/nature04602>



Duchamp Martial

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MSE
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KEY WORDS

Transmission electron
microscopy Low
temperature TEM
Transport operando a TEM

BIOGRAPHY

Asst. Prof. Martial Duchamp received his Ph.D. degree from the Physic department at the EPFL, Switzerland in 2009, where he studied the growth, electrical and mechanical properties of ZnO nanowires. After postdoctoral research at DTU, Copenhagen, Denmark, he joined the Research Center Jülich where he investigated devices operando a TEM using various TEM techniques, mainly focusing on the chemical analysis of very low dopant concentrations and high resolution imaging. In 2016, he joined NTU.

RESEARCH INTEREST

Development of Transmission Electron Microscopy (TEM) techniques In-situ and operando TEM experiments of electrically contacted devices Low temperature TEM experiments Study of 2D-materials including graphene and 2D TMDS in-situ a TEM Applications of various TEM techniques to material science problems.

RELEVANT PUBLICATIONS

H. Wang, Y. Chen, M. Duchamp, Q. Zeng, X. Wang, S.H. Tsang, H. Li, L. Jing, T. Yu, E.H. Tong Teo, Z. Liu Large-Area Atomic Layers of the Charge-Density-Wave Conductor TiSe₂ Advanced Materials 30 (2018) 1704382 doi: 10.1002/adma.201704382 A. Grimaud, A. Demortiere, M. Saubanere, W. Dachraoui, M. Duchamp, M.-L. Doublet and Jean-Marie Tarascon Activation of surface oxygen sites on an iridium-based model catalyst for the oxygen evolution reaction Nature Energy 2 (2016) 16189 doi: 10.1038/nenergy.2016.189 Q. Jeangros, M. Duchamp, J. Werner, M. Kruth, R.E. Dunin-Borkowski, B. Niesen, C. Ballif and A. Hessler-Wyser In situ TEM analysis of organic-inorganic metal-halide perovskite solar cells under electrical bias Nanoletters 16 (2016) 7013 doi: 10.1021/acs.nanolett.6b03158 M. Duchamp, V. Migunov, A. Tavabi, A. Mehomic, M. Munde, A.J. Kenyon and R.E. Dunin-Borkowski Advances in in-situ TEM characterization of silicon oxide resistive switching memories Resolution and Discovery 1 (2016) 27 doi: 10.1556/2051.2016.00036 M. Duchamp, Q. Xu and R.E. Dunin-Borkowski Convenient preparation of high quality specimens for annealing experiments in the transmission electron microscope Microsc. Microanal. 20 (2014) 1638 doi: 10.1017/S1431927614013476



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KEY WORDS

Coding theory,
combinatorial design
theory, extremal set
systems, electronic design
automation

BIOGRAPHY

Serge FDIDA received his PhD in 1984 and Habilitation a Diriger des Recherches in 1989 both from the University Pierre & Marie Curie (UPMC). His research interests are related to the Internet technology and protocols, with an emphasis on innovative wireless networks, large-scale content distribution systems as well as the design of federated test-beds to support experimentally driven research. From 1991 to 1995, he was a Full Professor at the University Rene Descartes (Paris). He was a Visiting Scientist at IBM Research (North Carolina) during the 1994/95 academic year and then joined the University Pierre & Marie Curie in 1995. He is/was leading or involved in many research projects in High Performance Networking in France and Europe, and was/is the coordinator of WIP (IST FP6 - An All Wireless Mobile Network Architecture), ONELAB, ONELAB2 and OPENLAB (IST FP6&7 - An Open Laboratory Supporting Network Research Across Heterogeneous Environments). Currently, he is also leading the Equipex FIT, a large-scale testbed on the Future Internet of Things. Serge Fdida has developed strong international cooperation's. He was chairing the COST264 Action on Internet Architecture in Europe (98-02), and was on the steering committee of the European FP6 network of Excellence ENEXT. Serge Fdida is a senior member of IEEE and a Distinguished ACM Member. He has also developed an experience related to innovation and industry transfer. He was the Director of EURONETLAB, a joint laboratory (2001-2007), between University Paris 6, CNRS, THALES, ENST and BLUWAN, developing collaborative research on the wireless internet. He is also a co-founder of the Qosmos company. He has a long experience associated to Education as he created and was in charge of the DEA "Reseaux" at UPMC (1999-2006), one of the first in this area in France. He was also the head of the Magistère d'Informatique d'Ile de France (1995-2002) and the Program related to "Networks and Systems Managers". Serge Fdida has supervised more than 50 PhDs. Serge Fdida has also a long experience of research management, as he as in charge of the recruiting committee in Computer Science at UPMC for 8 years and Associate Director of the department of Mathematics and Computer Science of the University Paris 5 (1993-1994). From 2000 to December 2005, he was appointed scientific adviser with CNRS-STIC (French National Scientific Research Center / Information Science & Technology). In addition, he was also the Vice-President of the RNRT (French national Research Network in Telecommunications), involving the industrial, academic and government actors in France. He has been Vice-President in charge of International Affairs at UPMC from 9/2011 to 12/2011 and is now VP in charge of Europe. Serge Fdida holds the "Palmes Académiques" Award.



Fuchs Jean-Noël

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Theoretical condensed
matter

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KEY WORDS

graphene, topological
insulators, geometrical
band theory, quantum Hall
effect, Hofstadter
butterfly, quasicrystals,
cold atoms, spin waves,
orbital magnetism

BIOGRAPHY

I am a theoretical physicist working in the fields of condensed matter and quantum physics.

I am employed by CNRS as a research director (directeur de recherche) at Laboratoire de Physique Théorique de la Matière Condensée (LPTMC, Sorbonne Université, Paris) since 2017. From 2012 to 2017, I was a CNRS researcher (chargé de recherche) at LPTMC.

From 2004 to 2012, I was an assistant-prof (maître de conférences) at Université Paris-Sud working in the theory group of the Laboratoire de Physique des Solides (LPS, Université Paris-Sud, Orsay). I am still a regular visitor there.

RESEARCH INTEREST

1) electrons in solids: topological band effects, Landau levels, quasicrystals, Dirac fermions 2) trapped cold atomic gases: spin waves

<https://www.lptmc.jussieu.fr/users/fuchs>

RELEVANT PUBLICATIONS

Landau levels, response functions and magnetic oscillations from a generalized Onsager relation, J. N. Fuchs, F. Piéchon, G. Montambaux, Journal ref: SciPost Phys. 4, 024 (2018), arXiv:1712.02131, doi:10.21468/SciPostPhys.4.5.024 Hofstadter butterfly of a quasicrystal, J. N Fuchs, J. Vidal, Phys. Rev. B 94, 205437 (2016), doi:10.1103/PhysRevB.94.205437, arXiv:1609.07729 Competition between Spin Echo and Spin Self-Rephasing in a Trapped Atom Interferometer, Cyrille Solaro, Alexis Bonnin, Frédéric Combes, Matthias Lopez, Xavier Alauze, Jean-Noël Fuchs, Frédéric Piéchon, Franck Pereira dos Santos, Phys. Rev. Lett. 117, 163003 (2016), arXiv:1605.03013, doi:10.1103/PhysRevB.94.155109 Statistical mechanics approach to the electric polarization and dielectric constant of band insulators, Frédéric Combes, Maximilian Trescher, Frédéric Piéchon, Jean-Noël Fuchs, Phys. Rev. B 94, 155109 (2016), arXiv:1605.01258, doi:10.1103/PhysRevB.94.134423 Geometric orbital susceptibility: quantum metric without Berry curvature, Frédéric Piéchon, Arnaud Raoux, Jean-Noël Fuchs, Gilles Montambaux, Phys. Rev. B 94, 134423 (2016), doi:10.1103/PhysRevB.94.134423, arXiv:1605.01258



Grimaud Alexis

CNRS RESEARCH ASSISTANT

Collège de France

Chemistry

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france.fr

BIOGRAPHY

2014-present: CNRS Research Assistant, Collège de France, Chaire Solid State Chemistry and Energy
2012-2014: Postdoctoral Associate, Electrochemical Energy Laboratory – Prof. Yang Shao-Horn, Massachusetts Institute of Technology

Engineering diploma Graduate School of Chemistry and Physics of Bordeaux (ENSCBP) 2008
PhD University Bordeaux, Bordeaux Institute of Condensed Matter Chemistry (ICMCB) 2011

RESEARCH INTEREST

Electrocatalysis, Ionic conduction, Fuel cells and metal-air batteries, Batteries, Solid state chemistry

I conduct my research in the area of solid state chemistry, electrocatalysis and design of materials for electrochemical energy storage and conversion. My research programs are centered on the fundamental understanding of redox processes of transition metal oxides used as electrodes for a wide variety of application such as low temperature fuel cells and electrolyzers, Li-air, Na-air and Li-ion batteries materials or high temperature solid oxide fuel cells with a special emphasis on applying a solid state chemistry approach for developing new materials through the fine tuning of their electronic structure. These programs include intensive experimental components such synthesis of new oxide materials, investigation of bulk and surface electrochemical processes, study of oxides electronic structure.

RELEVANT PUBLICATIONS

Grimaud A., May K.J., Carlton C.E., Lee Y.-L., Risch M., Zhou J. and Shao-Horn Y., Double Perovskite as a New Family of Highly Active Catalysts for Oxygen Evolution in Alkaline Solution, Nature Communications, 4, art. no. 2439, 2013.

Grimaud A., Carlton C.E., Risch M., Hong W.T., May K.J. and Shao-Horn, Y., Oxygen Evolution Activity and Stability of Ba₆Mn₅O₁₆, Sr₄Mn₂CoO₉ and Sr₆Co₅O₁₅: the Influence of Transition Metal Coordination, Journal of the Physical Chemistry C, 117, 25926, 2013.

Grimaud A., Bassat, J.-M, Mauvy, F., Pollet, M. Wattiaux, A., Weill, F., Marrony, M. and Grenier, J.-C., Oxygen Reduction Reaction of PrBaCo_{2-x}FexO_{5+d} compounds as H⁺-SOFC cathode: Correlation with Physical Properties, Journal of Material Chemistry A, 2, 3594, 2014.



Guibert Clément

ASSISTANT PROFESSOR

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clement.guibert@sorbonne
-universite.fr

KEY WORDS

Physical chemistry,
scattering techniques,
surface charge
characterisation and
modelling.

BIOGRAPHY

After research experiences in the domains of nanoparticles in microemulsions and polymer brushes, I started my PhD in 2012 in the laboratory PHENIX (Sorbonne Université) about magnetic hyperthermia of nanoparticles dispersed in complex media (polymer matrices, ionic liquids). In 2017, I became lecturer in LRS where I am now working on the study of the solid-liquid interface of catalytic systems.

RESEARCH INTEREST

My research focuses on the description and the understanding of the mechanisms that happen at the liquid-solid interface of catalytic systems during the preparation of catalysts and their use. It involves the use of techniques such as scattering techniques, streaming potential measurements, calorimetry and force spectroscopy. I am also interested in computational ab initio modelling.

RELEVANT PUBLICATIONS

Strain stiffening hydrogels through self-assembly and covalent fixation of semi-flexible fibers, R.P. Sijbesma, M. Fernandez-Castano Romera, C. Guibert, I.K. Voets, C. Storm, Angewandte Chemie International Edition (2017)
Hyperthermia of magnetic nanoparticles: experimental study of the role of aggregation, C. Guibert, V. Dupuis, V. Peyre, J. Fresnais, The Journal of Physical Chemistry C 119 (50), 28148-28154 (2015)
Controlling nanoparticles dispersion in ionic liquids by tuning the pH, C. Guibert, V. Dupuis, J. Fresnais, V. Peyre, Journal of colloid and interface science 454, 105-111 (2015)
Polyelectrolyte brush pH-response at the silica-aqueous solution interface: a kinetic and equilibrium investigation, B. T. Cheesman, E. G. Smith, T. J. Murdoch, C. Guibert, G. B. Webber, S. Edmondson, E. J. Wanless, Physical Chemistry Chemical Physics 15 (34), 14502-14510 (2013)



Humblot Vincent

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BIOGRAPHY

Dr Vincent Humblot (CNRS Researcher) graduated from the University of Liverpool in 2001, where he obtained a Ph D in Chemistry under the supervision of Professor Rasmita Raval. He is an expert in surface science and surface functionalisation applied to the biointerfaces. His main techniques are vibrational and electronic spectroscopies (FT-IR, PM-RAIRS & XPS) and scanning probe microscopies (AFM & AFM). He is involved in several national and international collaborations, that lead him to publish around 70 papers and several book chapters.

RESEARCH INTEREST

His main research interests are following two complementary routes: the first one is very fundamental with the study of biomolecules adsorbed on metallic surfaces under UHV environment, while the second aspect is more applied to biofouling aspects with the engineering of antibacterial surfaces for food industry or implantable materials.

RELEVANT PUBLICATIONS

S. Haq, N. Liu, V. Humblot, A.P.J. Jansen, R. Raval\$. Drastic Symmetry Breaking in Supramolecular Organisation of Enantiomerically Unbalanced Monolayers at Surfaces. *Nature Chemistry* 2009, 1 (5), 409-414. DOI: 10.1038/NCHEM.295

V. Humblot\$, J.-F. Yala, P. Thébault, K. Boukerma, A. Héquet, J.-M. Berjeaud\$, C.-M. Pradier. The Antibacterial Activity of MAGAININ I Immobilized onto Mixed Thiols Self Assembled Monolayers. *Biomaterials* 2009, 30 (21), 3503-3512. DOI: 10.1016/j.biomaterials.2009.03.025

A. Lombana, Z. Raja, S. Casale, C.-M. Pradier, T. Foulon, A. Ladram\$, V. Humblot\$. Temporin-Sha Peptides Grafted on Gold Surfaces Display Antibacterial Activity. *Journal of Peptide Science* 2014, 20, 563-569. DOI: 10.1002/psc.2654

C. Pinese, S. Jebors, E. Jumas Bilak, X. Garric, V. Humblot, C. Calers, J. Martinez, A. Mehdi\$, G. Subra\$ Simple and specific grafting of antibacterial peptides on silicone catheters. *Advanced Healthcare Materials*, 2016, 5, 3067-3073. DOI: 10.1002/adhm.201600757

C. Méthivier, H. Cruguel, D. Costa, C.-M. Pradier, V. Humblot\$. Tuning Surface Chirality of Adsorbed Gly-Pro Dipeptide/Cu(110) by Changing its Chemical Form via Electrospray Deposition. *Langmuir*, 2016, 32 (51), 13759-13763. DOI: 10.1021/acs.langmuir.6b03553



Joux Antoine

PROFESSOR

Cryptology Chair,
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Sorbonne Université

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BIOGRAPHY

I'm a researcher in cryptology, currently holding the Cryptology Chair of Fondation Partenariale de Sorbonne Université.

I work in the Number Theory team of Institut de Mathématiques de Jussieu—Paris-Rive-Gauche and also belong to the Ouragan Inria project.

RESEARCH INTEREST

My main topics of scientific interest are:

- Algorithmic Cryptanalysis
 - Collision-based algorithms
 - Lattice-reduction techniques
 - Fast linear algebra over discrete rings
 - Cryptanalysis from multivariate equations solving
 - Index Calculus (NFS and others)
 - Discrete logarithms in finite fields
 - Elliptic curve related algorithms
 - Algorithms for number fields

- Design of Cryptosystems
 - Tripartite Diffie-Hellman
 - Rmac
 - Mersenne-based Cryptosystem

RELEVANT PUBLICATIONS

<https://webusers.imj-prg.fr/~antoine.joux/publications.php>



Kashefi Elham

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KEY WORDS

Quantum Computing,
Quantum Communication,
Verification, Cloud
Computing, Quantum
Cryptography

BIOGRAPHY

Kashefi is Professor of quantum computing at school of Informatics University of Edinburgh and Director of Research at CNRS, Sorbonne Université. She has pioneered, a trans-disciplinary research environment, investigating all aspects of quantum computing and communicating from application all the way to actual implementation and industrial exploitation particularly in the domain of cloud computing and verification.

RESEARCH INTEREST

Quantum Cryptography
Quantum Cloud Computing
Verification of Quantum Technology
Experimental Implementation of Quantum Protocols
Foundation of Quantum Mechanics
Quantum Parallel Computing
New Models for Quantum Computing

RELEVANT PUBLICATIONS

S. Aaronson, A. Cojocaru, A. Gheorghiu and E. Kashefi, On the implausibility of classical client blind quantum computing Aaronson, International Conference on Quantum Cryptography, UK, QCrypt 2017
D. Mills, A. Pappa, T. Kapourniotis, E. Kashefi, Information Theoretically Secure Hypothesis Test for Temporally Unstructured Quantum Computation, International Conference on Quantum Physics and Logic, QPL2017
U. Chabaud, T. Douce, D. Markham, P. van Loock, E. Kashefi, G. Ferrini, Continuous-Variable Sampling from Photon-Added or Photon-Subtracted Squeezed States, Phys. Rev. A. 2017
M. Clementi, A. Pappa, A. Eckstein, I. Walmsley, E. Kashefi, S. Barz, Classical multiparty computation using quantum resources. Phys. Rev. A. 2017
U. Chabaud, T. Douce, D. Markham, P. van Loock, E. Kashefi and G. Ferrini, Continuous-Variable Sampling from Photon-Added or Photon-Subtracted Squeezed States, Phys. Rev. A. 2017.

<https://ekashefi.wordpress.com/publication/>



Maisonhaute Emmanuel

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KEY WORDS

molecular electrochemistry,
pulse radiolysis, TERS, SERS,
electrocatalysis, ultrafast
cyclic voltammetry,
molecular electronics

BIOGRAPHY

Emmanuel Maisonhaute, 46 years old, is professor at SU in physical chemistry.

His background concerns molecular electrochemistry and coupling electrochemistry to other approaches for unravelling difficult mechanisms.

RESEARCH INTEREST

- Ultrafast electrochemistry - Tip Enhanced Raman Spectroscopy - Surface Enhanced Raman Spectroscopy - Pulse radiolysis - Electrocatalysis - Molecular electronics

RELEVANT PUBLICATIONS

1) Fortgang, P., Maisonhaute, E., Amatore, C., Delavaux-Nicot, B., Iehl, J., Nierengarten, J-F., "Molecular Motion Inside an Adsorbed 5:1 Fullerene Hexaadduct Observed by Ultrafast Voltammetry", *Angewandte Chemie-International Edition*, 2011, 50, 2364-2367. doi: 10.1002/anie.201007289
2) Zhou, X. S., Liu, L., Fortgang, P., Lefevre, A. S., Serra-Muns, A., Raouafi, N., Amatore, C., Mao, B. W., Maisonhaute, E., Schöllhorn, B., "Do Molecular Conductance Correlate with Electrochemical rate Constants, Experimental insights", *J. Am. Chem. Soc.*, 2011, 133, 509-7516. doi: 10.1021/ja201042h
3) Sutter, E., Jungjohann, K., Bliznakov, S., Courty, A., Maisonhaute, E., Tenney, S., Sutter, P., "In-situ Liquid Cell Electron Microscopy of Ag-Pd Galvanic Replacement Reactions on Ag Nanoparticles.", *Nat. Comm.*, 2014, 5, 4946. doi: 10.1038/ncomms5946
4) Aubertin, P., Ben Aissa, M. A., Raouafi, N., Joiret, S., Courty, A., Maisonhaute, E., "Optical Response and SERS Properties of Individual Large Scale Supracrystals made of Small Silver Nanocrystals", *Nano Res.*, 2015, 8, 1615-1626. doi: 10.1007/s12274-014-0650-5
5) Zhou, X. S., Mao, B. W., Amatore, C., Compton, R. G., Marignier, J-L., Mostafavi, M., Nierengarten, J.-F., Maisonhaute, E. "Transient electrochemistry: beyond simply temporal resolution", *Chem. Comm.*, 2016, 52, 251-253. doi: 10.1039/c5cc07953e



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KEY WORDS

NMR, solid state, Amorphous
Silica alumina, zeolithe,
silica, talc, Metal Organic
Framework

BIOGRAPHY

2010: Associate Professor, Laboratoire de Réactivité de Surface, University of P. M. Curie. 2003: Associate Professor, Laboratoire SIEN, University of P. M. Curie. 2002: Assistant Professor, Laboratoire SIEN, University of P. M. Curie. 10/2001 – 08/2002: Postdoctoral Fellow, R. Van Santen and P. Magusin, Eindhoven University of Technology, The Netherlands. 05/2001: PhD in physical-chemistry, P. Man, University of P. M. Curie.

RESEARCH INTEREST

The investigation of heterogeneous catalysts by Solid state NMR.

RELEVANT PUBLICATIONS

“Incorporation of vanadium into the framework of hydroxyapatites: importance of the vanadium content and pH conditions during the precipitation step” Physical Chemistry Chemical Physics 19 (2017) 9630-9640.
<https://pubs.rsc.org/en/content/articlelanding/2017/cp/c6cp08782e#!divAbstract> “Influence of acid-base properties of Mg-based catalysts on transesterification: role of magnesium silicate hydrate formation” Catalysis Science & Technology 7 (2017) 1701-1712.
<https://pubs.rsc.org/en/content/articlelanding/2017/cy/c6cy02604d#!divAbstract> “Discrimination of Surface and Bulk Structure of Crystalline Hydroxyapatite Nanoparticles by NMR” J. Phys. Chem. C 119 (2015) 23008-23020.
<https://pubs.acs.org/doi/abs/10.1021/acs.jpcc.5b08732> “Mononuclear pseudo-tetrahedral V species of VSiBEA zeolite as the active sites of the selective oxidative dehydrogenation of propane” J. Catal. 305 (2013) 46-55.
<https://www.sciencedirect.com/science/article/pii/S0021951713001565> “Active and passive rotations with Euler angles in NMR” Concepts in Magnetic Resonance, 40A(5) (2012) 215-252.
<https://onlinelibrary.wiley.com/doi/abs/10.1002/cmr.a.21242>



Miserez Ali

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and Engineering (MSE) and
School of Biological
Sciences (SBS)

College of Engineering and
College of Science

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KEY WORDS

Bioinspired engineering,
nanomechanics,
biomineralization, protein,
x-ray, Raman spectroscopy,
biofouling, bioadhesives

BIOGRAPHY

Dr. Ali Miserez is an Associate Professor of Materials Science and Engineering at NTU. His research aims at revealing the molecular, physico-chemical, and structural principles of biological materials, and at translating these designs into novel biomimetic synthesis strategies. His work has been published in both general (Science, Nature Materials, Nature Biotechnology, Nature Chemical Biology, Advanced Materials) and specialized journals (Biomacromolecules, ACS Nano, JBC, Polym. Chem., etc).

RESEARCH INTEREST

Bioinspired materials and biomimetics; nanomechanics; biomineralization; biomaterials transcriptomics; mechanics of hard and soft biomaterials; structural protein biochemistry; protein engineering applied to materials science; materials characterization by x-ray and vibrational spectroscopy; biofouling and water-resistant adhesives; protein-based supramolecular structures; liquid-liquid phase separation and coacervation (<http://www.ntu.edu.sg/home/ali.miserez/Research.html>).

RELEVANT PUBLICATIONS

First or Leading Author Publications 1) Preventing Mussel Adhesion Using Liquid-Infused Materials, Science, vol. 357(6352), 668–673, 2017. 2) Supramolecular β -Sheets Stabilized Protein Nanocarriers for Drug Delivery and Gene Transfection. ACS Nano, vol. 11(5), 4528–4541, 2017. 3) An Underwater Surface-Drying Peptide Inspired by a Mussel Adhesive Protein. Advanced Functional Materials, vol. 26, 3496–3507, 2016. 4) Wet Adhesion of Mussel is Dictated by Molecular Conformation and Time-Regulated Secretion of Mussel Adhesive Proteins, Nature Communications, vol. 6, 8737, 2015. 5) The Role of Quasi-Plasticity in the Ultra Contact Damage Tolerance of the Stomatopod Dactyl Club, Nature Materials, vol.14, 943, 2015. 6) Infiltration of Chitin by Protein Coacervates Defines the Squid Beak Mechanical Gradient, Nature Chemical Biology, vol. 11(7), 488, 2015. 7) From Soft Self-Healing Gels to Stiff Films in Suckerin-Based Materials Through Modulation of Cross-Link Density and β -Sheet Content, Advanced Materials, vol. 27(26), pp. 3953–3961, 2015. 8) Accelerating the Design of Biomimetic Materials by Integrating RNA-seq with Proteomics and Materials Science, Nature Biotechnology, vol. 31, 908, 2013. 9) Non-Entropic and Reversible Long-Range Deformation of an Encapsulating Bioelastomer. vol(8), 910-916, Nature Materials, 2009. 10) The Transition from Stiff to Compliant Materials in Squid Beaks, Science, vol. 319, 1816, 2008.



Ollivier Cyril

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KEY WORDS

synthetic radical
processes, photocatalysis,
organometallic catalysis,
dual catalysis

BIOGRAPHY

Cyril Ollivier graduated from UPMC (Paris) and obtained his PhD in 2000 from the University of Fribourg (Switzerland) working with P. Renaud on organoboranes as a source of radicals, radical hydroxylation and azidation processes. He was awarded a Swiss Fellowship to work with P. Magnus at UT at Austin. In 2002, he was appointed CR CNRS at Aix-Marseille University. In 2007, he moved to Sorbonne University where he is now DR CNRS to develop synthetic radical and organometallic methods.

RESEARCH INTEREST

Substitution homolytique sur l'atome de soufre
Catalyse redox pour une synthèse radicalaire
écocompatible
Cyclisations radicalaires en cascade de N-acylcyanamides
et applications à la synthèse de composés
polyhétérocycliques azotés.
Réactivité des furanes silylés et utilisation en synthèse
Réactions de cycloisomérisation par catalyse
organométallique
Stratégie de l'anion chiral en catalyse asymétrique
organométallique (Financement ANR « SACCAOR »)

RELEVANT PUBLICATIONS

Intramolecular homolytic substitution at the sulfur atom:
An alternative way to generate phosphorus- and sulfur-
centered radicals, P. Carta, N. Puljic, C. Robert, A.-L.
Dhimane, C. Ollivier, L. Fensterbank, E. Lacôte, M.
Malacria, Tetrahedron Symposium-in-Print 2008, 24,
11865.
Intramolecular Homolytic Substitution of Sulfinates and
Sulfinamides, J. Coulomb, V. Certal, M.-H. Larraufie, C.
Ollivier, J.-P. Corbet, G. Mignani, E. Lacôte, L.
Fensterbank, M. Malacria, Chem. Eur. J. 2009, 15, 10225.
Chimie et développement durable : vers une chimie
organique écocompatible, M. Malacria, J.-P. Goddard, C.
Ollivier, Techniques de l'Ingénieur, mai 2009.
Radical Migration of Substituents of Aryl Groups on
Quinazolinones Derived from N-Acyl Cyanamides, M.-H.
Larraufie, C. Courillon, C. Ollivier, E. Lacôte, M. Malacria,
L. Fensterbank, J. Am. Chem. Soc. 2010, 132, 4381.
Radical Synthesis of Guanidines from N-Acyl Cyanamides,
M.-H. Larraufie, C. Ollivier, L. Fensterbank, M. Malacria, E.
Lacôte, Angew. Chem. Int. Ed. 2010, 49, 2178.



Petit Christophe

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Reactivity, Interactions and
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KEY WORDS

nanomaterials, magnetis ,
hydrogen valorisation,
SERS, molecular
spectroscopies, electronic
microscopies

BIOGRAPHY

Christophe Petit, is full professor at SU and director of the MONARIS lab. From 2011- 2017, he was co-responsible of the Nanochemistry thematic axe of the Labex MiChem (with Pr. Anna Proust IPCM, UPMC) and on the Nanochemistry axe of the network C'Nano from the "Region IdF". Since 2017 he is deputy director of the labex MiChem. Co-authored of 80 publications and 6 book chapters (h-index=33), his current research interest focus on rational synthesis of NCs and their physical properties.

RESEARCH INTEREST

My current interest are on nanoalloys and on the shape control of metallic NCs. I succeed to finalize a method of synthesis allowing a precise control of the size shape and the composition of nanoalloys and platinum NCs in order to control their electronic properties. We develop recently a one-pot synthesis of magnetic cobalt nanocrystals with perfect control of the size , shape and crystallinity. the other thematic of MONARIS are presented on www.monaris.cnrs.fr

RELEVANT PUBLICATIONS

- 1-First Synthesis by Liquid-Liquid Phase Transfer of Magnetic CoxPt100-x Nanoalloys A. Demortières and C. Petit, Langmuir 23, 8575, (2007)
- 2- Influence of Hydrogen on the morphology of platinum and palladium nanocrystals Salzemann C. ; Petit C. Langmuir, 2012, 28, 4835-4841.
- 3-Understanding How in Situ Generated Hydrogen Controls the Morphology of Platinum Nanoparticles N. Aguilera-Porta, M. Calatayud, C. Salzemann and C. Petit ; J.Phys. Chem C (2014) 118, 9290-9298.
- 4- Platinum and platinum based nanoalloys synthesized by wet chemistry C.Salzemann, F.Kameche A-T. Ngo, P.AndreaZZa, M. Calatayud and C. Petit Faraday Discussions, 2015, 181,19-36.
- 5-HCP Cobalt Nanocrystals with High Magnetic Anisotropy prepared by Easy One-Pot Synthesis L. Meziane, C. Salzemann, C. Aubert, H. Gerard, C. Petit, M. Petit, Nanoscale (2016), 8, 18640



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KEY WORDS

Bioinorganic chemistry, physical methods, electron paramagnetic resonance, metal transition complexes, magnetism, superoxide dismutase mimics, superoxide, transient MnOO adducts, low-temperature spectroscopies, glycochemistry: glycoligands, chirality at a metal centre, intracellular detection, cell-biology, biophysics, IR-spectromicroscopy

BIOGRAPHY

Metals in Biology - Inorganic Cellular Chemistry

Since 2016

Deputy director of the Institut de Chimie du CNRS in charge of interdisciplinarity (DAS-INC)

Since 2014

Deputy director of the LBM-UMR 7203 (Laboratoire des BioMolécules), Dean of the studies at the chemistry dpt ENS

Since 2008

Professor, École Normale Supérieure, Paris (France)

2005-08

Associate Professor, Univ. Paris-Sud11 (ICMMO), Orsay (France)

1996-2005

Assistant Professor, Univ. Paris-Sud 11 (ICMMO), Orsay (France)

RESEARCH INTEREST

SOD-mimics studied at the cell level, IR-spectromicroscopy, Single Core Multimodal Probes for Imaging ($M(CO)_3$)

RELEVANT PUBLICATIONS

-More than 70 peer-reviewed articles, 3 patents (1 licenced and extension, 1 under investigation), 2 book chapters upon invitation

http://www.chimie.ens.fr/?q=lbm/equipe-1/Metals_in_biology/people/bio-Clotilde.Policar

<http://www.chimie.ens.fr/?q=biblio/author/1765>



Proust Anna

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KEY WORDS

Polyoxometalates
Molecular oxides artificial
photosynthesis molecular
electronics electron
transfer CO₂ activation
atom transfer reactions
organic-inorganic hybrids
molecular materials

BIOGRAPHY

Anna Proust is a graduate of the Ecole Normale Supérieure and of the University Pierre et Marie Curie-Paris 06 (UPMC, Ph.D. degree in 1992 under the supervision of Professor P. Gouzerh). After a post-doctoral stay at the University of Bielefeld (Germany) with Professor Dr. A. Müller, she returned to UPMC as Assistant Professor, then Associate Professor. She has been full professor of inorganic chemistry since 2000 and was junior member of the Institut Universitaire de France (IUF 207-2011).

RESEARCH INTEREST

Anna Proust is an expert of the chemistry of polyoxometalates (POMs). POMs are soluble metal oxides of the early transition metals endowed with a great structural diversity and outstanding redox properties, hence great opportunities as tunable electron mediators/reservoirs. Her research interests are focused on organometallic oxides, noble metal-substituted polyoxometalates (POMs) and on the covalent functionalization and post-functionalization of POMs for applications in catalysis and molecular nanosciences. <http://www.ipcm.fr/article742.html?lang=en>

RELEVANT PUBLICATIONS

Molecular Signature of Polyoxometalates in Electron Transport of Silicon-based Molecular Junctions M. Laurans, K. Dalla Francesca, F. Volatron,* G. Izzet, D. Guerin, D. Vuillaume,* S. Lenfant,* A. Proust* *Nanoscale*, 2018, DOI: 10.1039/C8NR04946G Rapid photoinduced charge injection into covalent polyoxometalate-bodipy conjugates F. A. Black, A. Jacquart, G. Toupalas, S. Alves, A. Proust, I. P. Clark, E. A. Gibson,* G. Izzet* *Chemical Science*, 2018, 9, 5578-5584, DOI: 10.1039/c8sc00862k Tailor-made covalent organic-inorganic polyoxometalate hybrids: versatile platforms for the elaboration of functional molecular architectures G. Izzet*, F. Volatron, A. Proust *Chem. Record*. 2017, 17, 250-266, invited, doi.org/10.1002/tcr.201600092 Hierarchical self-assembly of polyoxometalate-based hybrids driven by metal coordination and electrostatic interactions: from discrete supramolecular species to nanoparticles-like assemblies G. Izzet,* B. Abécassis, D. Brouri, M. Piot, B. Matt, C. Bo, S. Serapian, A. Proust *J. Am. Chem. Soc.*, 2016, 138, 5093-5099, DOI: 10.1021/jacs.6b00972 Binary Superlattices from {Mo₁₃₂} Polyoxometalates and Maghemite Nanocrystals: Long-range Ordering and Fine-tuning of Dipole Interactions R. Breitwieser, T. Auvray, F. Volatron, C. Salzemann, A.-T. Ngo, P.-A. Albouy, A. Proust*, C. Petit* *Small*, 2016, 12, 220-228, DOI: 10.1002/smll.201502127



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KEY WORDS

radical polymerization
polymerization-induced
self-assembly micelles
fibers vesicles self-
assembly nanogels

BIOGRAPHY

Jutta Rieger obtained her PhD degree in 2005 on the synthesis and assembly of epsilon-caprolactone-based polymer architectures at CERM (Belgium) and at CERMAV (France). In 2007 she joined the Polymer Chemistry Team at Sorbonne University and started working on RAFT polymerization. Since 2009 she holds a CNRS researcher position in the same lab. Her research focuses on the synthesis and characterization of functional polymeric materials using homogeneous or heterogeneous polymerization processes.

RESEARCH INTEREST

controlled radical polymerization polymerization induced self-assembly (PISA) RAFT polymerization emulsion and dispersion polymerization self-assembly
<http://www.ipcm.fr/article599.html>

RELEVANT PUBLICATIONS

J. Rieger, "Guidelines for the synthesis of block copolymer particles of various morphologies by RAFT dispersion polymerization." *Macromol. Rapid Commun.* 2015, 36 (16), 1458-1471. R. Albigès, P. Klein, S. Roi, F. Stoffelbach, C. Creton, L. Bouteiller, J. Rieger, "Water-based acrylic coatings reinforced by PISA-derived fibres" *Polym. Chem.* 2017, 8, 4992-4995. M. Chenal, J. Rieger, C. Vechambre, M. Chenal, L. Chazeau, C. Creton, L. Bouteiller, "Soft nanostructured films with an ultralow volume fraction of percolating hard phase." *Macromol. Rapid Commun.* 2013, 34(19), 1524-1529. C. Grazon, J. Rieger, R. Méallet-Renault, G. Clavier, B. Charleux, "One-pot Synthesis of Pegylated Fluorescent Nanoparticles by RAFT Miniemulsion Polymerization Using a Phase Inversion Process." *Macromol. Rapid Commun.* 2011, 32 (9-10), 699-705. N. Sanson J. Rieger, "Synthesis of nanogels/microgels by conventional and controlled radical crosslinking copolymerization." *Polym. Chem.* 2010, 1, 965-977.



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KEY WORDS

Ab initio calculations
Phase transformations
Molecular systems Water
and ices Prebiotic
chemistry and origins of
life Free energy methods
Graphene and nanoribbons
Extreme conditions

BIOGRAPHY

A. Marco Saitta obtained a PhD in Condensed Matter Theory from the International School for Advanced Studies in Trieste in 1997, and then moved to Philadelphia, USA, for a postdoc at the University of Pennsylvania. In 2000 he was appointed Maître de Conférences at UPMC/Sorbonne Université, and where he is currently full professor. He serves since February 2013 as Deputy Director of the Physics Department of SU. He is a member of the National Committee of CNRS in Condensed Matter since 2016.

RESEARCH INTEREST

A specialist of electronic structure theory and ab initio calculations, his research activity has spanned from bulk semiconductors to graphene and nanotubes, to water and ices, with a main interest in molecular systems at extreme conditions. In recent years his research has opened up into more interdisciplinary fields, such as Earth sciences and geobiochemistry. He has authored about 100 articles, including 30 in high impact journals (Nature, PNAS, Phys Rev Lett).

RELEVANT PUBLICATIONS

1. Fabio Pietrucci and A. Marco Saitta, Formamide reaction network in gas phase and solution via a unified theoretical approach: Toward a reconciliation of different prebiotic scenarios, PNAS 112, 15030 (2015)
<http://www.pnas.org/content/112/49/15030>
2. A. Marco Saitta and Franz Saija, Miller experiments in atomistic computer simulations, PNAS 111, 13768 (2014)
<http://www.pnas.org/content/111/38/13768>
3. A. Marco Saitta, Franz Saija, and Paolo V. Giaquinta, Ab Initio Molecular Dynamics Study of Dissociation of Water under an Electric Field, Phys. Rev. Lett. 108, 207801 (2012)
<https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.108.207801>
4. S. Ninet, F. Datchi, and A.M. Saitta, Proton disorder and superionicity in ammonia ice, Phys. Rev. Lett. 108, 165702 (2012).
<https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.108.165702>
5. T. Wassmann, A.P. Seitsonen, A.M. Saitta, M. Lazzeri and F. Mauri Structure, Stability, Edge States, and Aromaticity of Graphene Ribbons, Phys. Rev. Lett. 101, 096402 (2018). (400 citations)
<https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.101.096402>



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KEY WORDS

ionic liquids, supercapacitors,
molecular dynamics,
nanoporous carbons, energy
storage

BIOGRAPHY

Mathieu Salanne is full professor since 2016 at Sorbonne University, where he leads the Electrochemistry and Ionic Liquids team of the PHENIX laboratory. His research aims at predicting the properties of energy storage materials using molecular simulations. His current projects are funded through an excellence research chair in computational science (2014) and a ERC consolidator grant (2018). He has published more than 110 papers, including 3 Nat. Mater., 1 Nat. Energy, 1 Nat. Comm. and 4 PRL.

RESEARCH INTEREST

We simulate systems consisting in concentrated electrolytes and carbon electrodes. We adopt a bottom-up strategy which consists in starting from a simple system with planar graphite electrodes before to tackle the more complex problem of realistic nanoporous electrodes. In our simulations we can apply a potential difference between the electrodes of the supercapacitor, which allows us to calculate the capacitances of the various setups and to interpret experimental data. See <http://www.phenix.cnrs.fr/spip.php?article305&lang=en> for more information.

RELEVANT PUBLICATIONS

- Efficient storage mechanisms for building better supercapacitors. Mathieu Salanne, Benjamin Rotenberg, Katsuhiko Naoi, Katsumi Kaneko, Pierre-Louis Taberna, Clare Grey, Bruce Dunn & Patrice Simon, Nature Energy, 1, 16070 (2016) - Confinement, Desolvation, And Electrosorption Effects on the Diffusion of Ions in Nanoporous Carbon Electrodes. Clarisse Pean, Barbara Daffos, Benjamin Rotenberg, Pierre Levitz, Matthieu Haefele, Pierre-Louis Taberna, Patrice Simon & Mathieu Salanne, JACS 137 12627–12632 (2015) - On the Dynamics of Charging in Nanoporous Carbon-Based Supercapacitors. Clarisse Péan, Céline Merlet, Benjamin Rotenberg, Paul Anthony Madden, Pierre-Louis Taberna, Barbara Daffos, Mathieu Salanne & Patrice Simon, ACS Nano 8 1576-1583 (2014) - Highly confined ions store charge more efficiently in supercapacitors. Céline Merlet, Clarisse Péan, Benjamin Rotenberg, Paul Madden, Barbara Daffos, Pierre-Louis Taberna, Patrice Simon & Mathieu Salanne, Nature Commun. 4 2701 (2013) - On the molecular origin of supercapacitance in nanoporous carbon electrodes. Céline Merlet, Benjamin Rotenberg, Paul A. Madden, Pierre-Louis Taberna, Patrice Simon, Yury Gogotsi & Mathieu Salanne, Nature Mater. 11 306-310 (2012)



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KEY WORDS

bioorganometallic
chemistry; artificial
metalloenzymes; protein
conjugation;
immunochemistry;
immunosensors; metal
carbonyl complexes;
infrared spectroscopy;
metallodrugs

BIOGRAPHY

Michèle Salmain was recruited by the CNRS as a first class associate researcher (CR1) in 1992. Between 1992 and 2013, she pursued her academic career as a research team member at the Ecole Nationale Supérieure de Chimie de Paris (ENSCP). In 2014, I moved to the Université Pierre et Marie Curie (UPMC) at the Institut Parisien de Chimie Moléculaire (IPCM). I am the author of 115 publications in peer-reviewed journals (h-index 29) and 7 book chapters.

RESEARCH INTEREST

My first field of interest is bioorganometallic chemistry. In this area, I develop researches in the design of artificial metalloenzymes for asymmetric catalysis. This area benefits from my long-term expertise in protein chemical engineering. I have also some minor activities in organometallic medicinal chemistry and metal carbonyl complexes as mid-infrared probes. My second field of interest is biosensors design using my expertise in protein conjugation and immunochemistry.

RELEVANT PUBLICATIONS

1. A. Chevalley, M. V. Cherrier, J. C. Fontecilla-Camps, M. Ghasemi, and M. Salmain. (2014) Artificial metalloenzymes derived from bovine β -lactoglobulin for the asymmetric transfer hydrogenation of an aryl ketone – synthesis, characterization and catalytic activity, Dalton Trans. 43, 5482 - 5489. DOI: 10.1039/C3DT53253D
2. J. M. Zimbron, K. Passador, B. Gatin-Fraudet, C.-M. Bachelet, D. Plažuk, L.-M. Chamoreau, C. Botuha, S. Thorimbert, and M. Salmain. (2017) Synthesis, Photophysical Properties, and Living Cell Imaging of Theranostic Half-Sandwich Iridium-4,4-Difluoro-4-bora-3a,4a-diaza-s-indacene (BODIPY) Dyads, Organometallics 36, 3435-3442. DOI: 10.1021/acs.organomet.7b00250
3. M. Ben Haddada, D. Hu, M. Salmain, L. Zhang, C. Peng, Y. Wang, B. Liedberg, and S. Boujday. (2017) Gold nanoparticle-based localized surface plasmon resonance for staphylococcal enterotoxin A (SEA) detection, Anal. Bioanal. Chem. 409, 6227-6234. DOI: 10.1007/s00216-017-0563-8
4. V. Scalcon, M. Salmain, A. Folda, S. Top, P. Pigeon, H. Z. S. Lee, G. Jaouen, A. Bindoli, A. Vessières, and M. P. Rigobello. (2017) Tamoxifen-like metallocifens target thioredoxin system determining mitochondrial impairment leading to apoptosis in Jurkat cells, Metallomics 9, 949-959. DOI: 10.1039/C7MT00121E
5. J. d. J. Cázares-Marino, C. Przybylski, and M. Salmain. (2018) Hybrid biocatalysts from the dative assembling of half-sandwich RuII, RhIII or IrIII complexes with bovine β -lactoglobulin (β LG): Application to the asymmetric transfer hydrogenation of ketones in water, Eur. J. Inorg. Chem., 1383-1393. DOI: 10.1002/ejic.201701359



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KEY WORDS

Probability, Stochastic Modeling in Neuroscience, Piecewise Deterministic Markov Processes, stochastic optimal control, stochastic representation of PDEs, ergodicity and estimation for hypoelliptic systems of SDEs, Optimal Transport, Malliavin Calculus, processes with fixed marginals, symmetries of SDEs and associated PDEs.

BIOGRAPHY

- Maître de Conférences with HDR (Habilitation à diriger des recherches), Agrégation, previously student at the E. N. S. Cachan. - Awards, Distinctions: Ito Prize (2007) from the journal Stochastic Processes and their Applications, Alexander von Humboldt Fellowship (2002-2003), Human Capital and Mobility Fellowship from the European Community (1994), - Member of CNU (current), - Member of the Commission des Thèses et Habilitations (current), - Member of Conseil Scientifique de l'INSMI, CNRS.

<https://www.lpsm.paris/pageperso/thieullen/>

RESEARCH INTEREST

My current work is in stochastic modeling for Neuroscience. I have been coordinator of the ANR project "Mathematical Analysis of Neuronal Dynamics" (2009-2012) which contributed to develop this topic. I am interested in the role of ion channels in neuronal excitability as well as in periodic phenomena for a single cell or for a population of neurons. I look for theoretical and/or numerical results and to the possible use of the probabilistic results to statistical estimation. The probabilistic tools that I use are: Piecewise Deterministic Markov Processes in finite and infinite dimension and about these the questions of ergodicity, averaging, diffusion approximation. I also study hypoelliptic systems of SDEs that are non homogeneous in time. These types of models can also be used to study the electrical activity of the heart.

RELEVANT PUBLICATIONS

Thieullen, M., Vigot, A., Stochastic representation of tau functions with an application to the Korteweg-de-Vries equation. Communications on Stochastic Analysis, Vol. 12:N. 1 (2018) DOI: 1031390/cosa.12.1.01 Renault, V., Thieullen, M., Trélat, E., Minimal time spiking in various ChR2-controlled neuron models. Journal of Mathematical Biology, (2018) 76: 567-608. <https://doi.org/10.1007/s00285-017-1101-1> Lemaire, V., Thieullen, M., Thomas, N., Exact Simulation of the Jump Times of a Class of Piecewise Deterministic Markov Processes. À paraître dans Journal of Scientific Computing (2017). <https://doi.org/10.1007/s10915-017-0607-4> Thieullen, M., Vigot, A., Iterated Stochastic Processes : Simulation and Relationship with High Order Partial Differential Equations. Methodology and Computing in Applied Probability 19 (2017), no. 1, 121-149. Hoepfner, R., Loecherbach, E., Thieullen, M., Strongly degenerate time inhomogeneous SDEs: densities and support properties. Application to Hodgkin-Huxley type systems. Bernoulli 23 (2017), no. 4A, 2587-2616. Renault, V., Thieullen, M., Trélat, E., Optimal control of infinite-dimensional piecewise deterministic Markov processes and application to the control of neuronal dynamics via optogenetics. Networks and Heterogeneous Media 12 (2017)...



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KEY WORDS

Heterocycles - Catalysis -
Hybrid materials -
Organocatalysis

BIOGRAPHY

Serge did his PhD in Chemistry under the supervision of Prof. J.-P. Genêt. He moved in 1993 to the MPI in Mülheim/Rhur to work with Prof. W. F. Maier on the sol-gel preparation of heterogeneous catalysts for olefin epoxidation. In 1998-99, he worked as an academic visitor in the D. Craig's group at the Imperial College of London. He started his carrier at the UPMC (now Sorbonne Université) in 1995 as Maître de Conférences working in collaboration with Prof. M. Malacria and has been promoted Full

RESEARCH INTEREST

See web site : <http://www.ipcm.fr/article685.html>

RELEVANT PUBLICATIONS

<http://www.researcherid.com/rid/C-3699-2009>



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RESEARCH INTEREST

<http://www.ipcm.fr/article694.html?lang=en>

RELEVANT PUBLICATIONS

A. Vessières

Metal carbonyl tracers and the ferrocifen family : two facets of bioorganometallic chemistry. _ J. Organomet. Chem. 2013, 734, 3-16, doi :

10.1016/j.jorganchem.2012.12.020.

E. Licandro, M. Panigati, M. Salmain, A. Vessières
Organometallic Bioprobes for Cellular Imaging.

In Bioorganometallic Chemistry 2nd Edition; Salmain, M., Jaouen, G., Eds.; Wiley-VCH, chap. 11; pp 341-391 (sous presse).

S. Clede, F. Lambert, R. Saint-Fort, M. A. Plamont, H. Bertrand, A. Vessières, C. Policar

Influence of the Side-Chain Length on the Cellular Uptake and the Cytotoxicity of Rhenium Triscarbonyl Derivatives: A Bimodal Infrared and Luminescence Quantitative Study. Chem. Eur. J. 2014, 20, 8714-8722, doi:

10.1002/chem.201402471.

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Chemmedchem 2014, 9, 1286-93, doi:

10.1002/cmdc.201402016.

C. Bruyère, V. Mathieu, A. Vessières, P. Pigeon, S. Top, G. Jaouen, R. Kiss

Ferrocifen derivatives that induce senescence in cancer cells: selected examples.

J. Inorg. Biochem. 2014, 141, 144-151, doi:

10.1016/j.jinorgbio.2014.08.015.