Arnaud CHAIX

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Personal objectives: Postdoctoral position

EDUCATION & QUALIFICATIONS

Oct 2012- Oct 2015: **Ph.D** in chemistry at Ecole Nationale Supérieure de Chimie de Montpellier

2012: **MS** –Chemistry and Physical Chemistry of Materials, UM II
Specialization: **Materials, Interfaces and Colloids (MIC)**

2010: **BS** – Chemistry of Material, University of Montpellier II (UM II)

PROFESSIONAL EXPERIENCE

2012-2015: Ph.D in Chemistry at Ecole Nationale Supérieure de Chimie Montpellier / 3 years
Supervisor: Dr Jean-Olivier Durand and Dr Frédérique Cunin
Topic: Preparation of porous silicon nanoparticles for photodynamic therapy and gene delivery

2013: Summer school at University of San Diegio, California (UCSD)/ 3 months
Supervisor: Pr Mike. J. Sailor
Topic: Study of the photoluminescence and quenching of porous silicon nanoparticles

2012: Internship at University of Los Angeles, California (UCLA)/ 8 months
Supervisor: Pr. Jeffrey. I. Zink
Topic: Nanomachines activated by one and two-photon excitation

2011: Internship at the Charles Gerhardt Institute of Montpellier (ICGM) / 2 months
Supervisor: Dr. Jean-Olivier Durand and Dr. Laurence Raehm
Team: Molecular Chemistry and Solid Organization (CMOS)
Topic: Mesoporous silica nanoparticles for drug delivery

2010: Internship at the European Membrane Institute (IEM) / 2 months
Team: Sol-Gel Plasma (SGP)
Topic: Physicochemical characterizations of materials (polymer plasma type)

Research interests:

- **Materials** : Porous Silicon nanoparticles, mesoporous silica nanoparticles and gold nanoparticles
- **Nanomedecine :** Photodynamic therapy, gene delivery, drug delivery, imaging

Developed skills:

Dynamic light Scattering, XRD, N2 Adsorption/ Desorption, Infrared, TEM, SEM, Photoluminescence, Spectroscopy UV-vis, Plasma-Enhanced Chemical Vapor Deposition (PECVD), Zeta potential, EDX, NMR of proton (liquid and solid state), MALDI-TOF, Mass spectrometry

Computing skills:

Word, Excel, Power Point, Chembiodraw, Igor, Origin, MestReNova, EndNote

Foreign languages: French (native language), English: read, spoken and writing articles

Teaching Interests:

Third year chemistry classes at Ecole Nationale Supérieure de Chimie Montpellier (Oct 2012-Oct 2015): Experimental Inorganic chemistry

Publications:

1. Emilie Secret, Marie Maynadier, Audrey Gallud, Magali Gary-Bobo, **Arnaud Chaix**, Emmanuel Belamie, Philippe Maillard, Michael J. Sailor, Marcel Garcia, Jean-Olivier Durandad and Frederique Cunin. *Anionic Porphyrin-grafted on Porous Silicon Nanoparticles for Photodynamic Therapy*, **Chem Comm**, 2013, **49**, 4202-4204.

2. Jonas Croissant, **Arnaud Chaix**, Olivier Mongin, Miao Wang, Sébastien Clément, Laurence Raehm, Jean-Olivier Durand, Vincent Hugues, Mireille Blanchard-Desce, Marie Maynadier, Audrey Gallud, Magali Gary-Bobo, Marcel Garcia, Jie Lu, Fuyuhiko Tamanoi, Daniel P. Ferris, Derrick Tarn and Jeffrey I. Zink. *Two-Photon-Triggered Drug Release via Multifunctional Nanovalve*, **Small**, 2014, **10**, 1752.

3. Emilie Secret, Marie Maynadier, Audrey Gallud, **Arnaud Chaix**, Elise Bouffard, Magali Gary-Bobo, Nathalie Marcotte, Olivier Mongin, Khaled El Cheikh, Vincent Hugues, Mélanie Auffan, Céline Frochot, Alain Morère, Philippe Maillard, Mireille Blanchard-Desce, Michael J. Sailor, Marcel Garcia, Jean-Olivier Durand and Frédérique Cunin. *Two-Photon Excitation of Porphyrin-Functionalized Porous Silicon Nanoparticles for photodynamic therapy*, **Advanced Materials**, 2014, 26, 7643-7648.

4. Hashim Alhmoud, Bahman Delalat, Roey Elnathan, Anna Cifuentes-Rius, Arnaud Chaix, Mary-Louise Rogers, Jean-Olivier Durand and Nicolas H. Voelcker. Porous Silicon Nanodiscs for Targeted Drug Delivery, **Advanced Functional Materials**, 2014, **25**, 1137-1145.

5. Jonas Croissant, Marie Maynadier, Olivier Mongin, Vincent Hugues, Mireille Blanchard-Desce, **Arnaud Chaix**, Xavier Cattoën, Michel Wong Chi Man, Audrey Gallud, Magali Gary-Bobo, Marcel Garcia, Laurence Raehm and Jean-Olivier Durand. *Enhanced Two-Photon Fluorescence Imaging and Therapy of Cancer Cells via Gold@Bridged Silsesquioxane Nanoparticles*, **Small**, 2014, **11**, 295.

6. Emilie Secret, Chia-Chen Wu, Arnaud Chaix, Anne Galarneau, Philippe Gonzalez, Didier Cot, Michael J. Sailor, Jacques Jestin Jean-Marc Zanotti, Frédérique Cunin and Benoit Coasne. *Control of the Pore Texture in Nanoporous Silicon via chemical Dissolution*, **Langmuir**, 2015, 31 (29), 8121-8128.

7. Nikola Z. Knezevic, Vanja Stojanovic, **Arnaud Chaix**, Elise Bouffard, Khaled El Cheikh, Alain Morere, Marie Maynadier, Gilles Lemercier, Marcel Garcia, Magali Gary-Bobo, Jean-Olivier Durand and Frederique Cunin. *Ruthenium (II) complex-photosensitized multifunctionalized porous silicon nanoparticles for two-photon near-infrared light responsive imaging and photodynamic therapy*, **J Mater Chem B**, 2016

8. Thomas Defforge, Sanahan Vijayakumar, Armando Loni, **Arnaud Chaix**, Audrey Sauldubois, Caroline Andreazza-Vignolle, Frédérique Cunin, Francesco Di Renzo, Leigh Canham, Gaël Gautier. *Porosity Control and transfer in silicon nanostructures through electrochemical and chemical etching*, **ECS Transactions**, Oct 2015

9. **Arnaud Chaix**, Khaled El Cheikh, Elise Bouffard, Marie Maynadier, Dina Aggad, Vanja Stonajovic, Nikola Knezevic, Marcel Garcia, Philippe Maillard, Alain Morere, Magali Gary-Bobo, Laurence Raehm, Sebastien Richeter, Jean-Olivier Durand and Frederique Cunin. *Mesoporous silicon nanoparticles for targeted two-photon theranostic of prostate cancer*, **J Mater Chem B**, 2016, April 2016

10. Enhanced two-photon fluorescence imaging and therapy of cancer cells with gold nanoparticles-decorated porous silicon nanostructure, **RSC Advances**, in progress

(1) Papers in preparation Porous Silicon Nanoparticles for gene delivery

Conferences presentations:

1. International oral presentation: **One and Two Photon Activation of Porphyrin-Functionalized Porous Silicon Nanoparticles for Imaging and Photodynamic Therapy.** Porous Semiconductors-Science and Technology, Alicante-Benidorm, Spain, 9-14 Mars 2014.

1. National oral presentation: **Nanoparticules de silicium poreux fonctionnalisées pour la thérapie photodynamique mono et bi-photonique.** Matériaux, France, 24-28 Nov 2014.

Referees:

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