



FLORIAN AUBRIT

CEA RESEARCHER – MATERIALS PHYSICO-CHEMISTRY

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FORMATION

2014–2017 PhD in materials physico-chemistry; Université de Bordeaux, Bordeaux (France)

2014 Diploma of ENS de Paris, discipline "Chemistry"; ENS de Paris, Paris (France) *Secondary discipline: sciences of Antiquity*

2012–2014 Master of chemistry and materials physico-chemistry; ENS de Paris and UPMC, Paris (France)

2011–2012 Bachelor of chemistry; ENS de Paris and UPMC, Paris (France)

2009–2011 Classes préparatoires, discipline: PCSI/PC*; Lycée Camille Guérin, Poitiers (France)

2009 Baccalauréat of sciences; Lycée Polyvalent du Haut Val de Sèvres, Saint Maixent-l'École (France) *Specialisation: sciences of engineering*

SCIENTIFIC SKILLS

- Inorganic nanoparticle synthesis (chemical and physico-chemical processes)
- (Co)polymer nanostructuration
- Nanostructured composite materials synthesis
- Use of microscopy techniques (SEM, TEM, AFM)
- Spectroscopy (FTIR, UV-visible and fluorescence)
- Experience on synchrotron (GISAXS, GIWAXS, GIXF)
- Experience on ion and electron accelerators
- Swift heavy ion beam alignment
- Dynamic Light Scattering (DLS)
- 3D drawing and printing

INFORMATIC SKILLS

- Blender
3D drawing graphical software
- FreeCAD
Drawing tool for 3D printing
- IGOR, Excel
Data treatment environments
- ImageJ
Image treatment
- Inkscape
2D vectorial drawing editor
- LateX
Document composition and writing
- Python
Programmation software
- Tkinter
Python-related graphical base

EXPERIENCE

since 2022 **CEA researcher**; Laboratoire des Solides Irradiés, Palaiseau (France)

Elaboration of polymer-based composite materials via chemical and radiolytical processes

Team: Physico-Chemistry of Nanomaterials (PCNano)

2021–2022 **Post-doctoral researcher**; Centre de recherche sur les Ions, les MATériaux et la Photonique, Caen (France)

Synthesis and study of the gas emission from polymer/gold nanocomposites for low dose γ -ray dosimetry

Referent: Dr. Yvette NGONO (yvette.ngono@ganil.fr)

2019–2020 **Research engineer**; Laboratoire de Chimie des Polymères Organiques, Pessac (France)

Fabrication of multifunctional hybrid nanosystems

Referent: Dr. Olivier SANDRE (olivier.sandre@enscbp.fr)

2018–2019 **Post-doctoral researcher**; Cordouan Technologies & Laboratoire de Chimie des Polymères Organiques, Pessac (France)

Development of a DLS innovating prototype allowing the anisotropical nanoparticle characterization and its application on magnetic nanowires

Referents: Dr. David JACOB (david.jacob@cordouan-tech.com) & Dr. Olivier SANDRE (olivier.sandre@enscbp.fr)

2014–2017 **PhD student**; Centre de Recherche Paul Pascal, Bordeaux (France) & LIONS (CEA-Saclay), Gif-sur-Yvette (France)

Self-assembled plasmonic nanocomposite films

Supervisors: Dr. Virginie PONSINET (ponsinet@crpp-bordeaux.cnrs.fr) & Dr. Patrick GUENOUN (patrick.guenoun@cea.fr)

2014 **Research intern (6 mois)**; Laboratoire de Physique et d'Étude des Matériaux, ESPCI, Paris (France)

Optimisation of fluorescent semiconductor nanoparticle synthesis in order to enhance their optical properties

2013 **Research intern (6 mois)**; Dipartimento di Scienze Molecolari e Nanosistemi, Università Ca' Foscari, Venise (Italie)

Archaeological artefact restoring and study of a new iron-corrosion inhibitor

2012 **Research intern (2 mois)**; Laboratoire de Réactivité des Surfaces, Ivry-sur-Seine (France)

Study of a secondary phase within Ni^{2+} -exchanged zeolites X

2011 **Research intern (1 mois)**; Laboratoire des Matériaux Mésoscopiques et Nanométriques (now MONARIS), UPMC, Paris (France)

Organometallic synthesis of silver nanoparticles

TEACHING AND KNOWLEDGE DIFFUSION

- 2024 **Supervision of MODAL Physics – M1 level;** École polytechnique, Palaiseau (France)
Plasmonic nanoparticle characterisation using spectroscopy and electron microscopy
12h
- 2020 **Supervision of practical sessions – M2 level;** ENSCBP, Pessac (France)
Polymer/gold nanoparticle composite filaments synthesis and use in 3D printing
8h
- 2020 **Supervision of last year bachelor technical project;** ENSCBP, Pessac (France)
Fabrication and 3d printing of dichroic gold nanoparticle-containing polymer-based composites
3 weeks
- 2017–2020 **Supervision of practical sessions – M2 level;** ENSCBP & Université de Bordeaux, Pessac (France)
Synthesis of plasmonic gold nanoparticles
48h
- 2016 **Summer school workshop – researchers of various disciplines;** GDR Or-Nano, Agde (France)
Synthesis of plasmonic gold nanoparticles
6h
- 2016 **Presentation workshop – CEA agents;** CEA-Saclay, Gif-sur-Yvette (France)
Presentation of 3D printing and drawing techniques
4h

SCIENTIFIC CONTRIBUTION

1 Publications and patents

- 2025 M. Jonsson *et al.* Chap. 6.4.1 "Track-etched membranes as templates for metal nanoparticles" from *Nanomaterial synthesis and modification by ionizing radiation* book; edition: International Atomic Energy Agency; publication expected for April 2025
- 2024 A. Cosola, I. Roppolo, F. Frascella, L. Napione, G. Barrera, P. Tiberto, F. Turbant, V. Arluison, I. Caldelari, N. Mercier, M. Castellino, F. Aubrit, and G. Rizza "4D Printing of multifunctional devices induced by synergistic role of magnetite and silver nanoparticles in polymeric nanocomposites"; *Advanced Functional Materials*, 2406226 (1–12)
- 2023 M. Sall, O. Yahyaoui, H. Alassaad, F. Aubrit, Y. Ngono-Ravache, E. Balanzat, and I. Monet "On the effect of oxygen on the creation of colour centres in swift heavy ion-irradiated AlN"; *Nuclear Instruments and Methods in Physics Research B*, 536, 18–22
- 2022 O. Sandre, F. Aubrit, B. Maxit, D. Jacob, and S. Boj "Depolarized Dynamic Light Scattering (DDLS) Application for Particles Size Measurement"; *Azonano*, <https://hal.science/hal-03725461v1/file/Depolarized-Dynamic-Light-Scattering-%28DDLS%29-Application-for-Particles-Size-Measurement.pdf>
- 2020 T. Dao, L. Veznekov, G. Subra, M. Ambard, M. In, J.-F. Le Meins, F. Aubrit, M.-A. Moradi, V. Ladmiral, and M. Semsarilar "Self-assembling peptide polymer nano-objects *via* polymerization-induced self-assembly"; *Macromolecules*, 53, 7034–7043
- 2020 F. Aubrit, R. Lewandowska, and D. Jacob "Quantum dots size measurement with NIR dynamic light scattering"; *Azonano*, <https://hal.science/hal-03608359/file/Quantum-Dot-Size-Measurements-with-NIR-Dynamic-Light-Scattering.pdf>
- 2019 F. Aubrit, D. Jacob, and O. Sandre ; Cordouan Technologies/CNRS/Université de Bordeaux/INP Bordeaux; Patent: *Apparatus and method for determining characteristic parameters of nanoparticle dimensions*; FR 19-09692 (2019), EP 19-1213.6 (2020), US 11,156,540 (2021)
- 2018 F. Aubrit, F. Testard, A. Paquirissamy, F. Gobeaux, X. Wang, F. Nallet, P. Fontaine, V. Ponsinet, and P. Guenoun "Incorporation of plasmonic gold nanoparticles inside ordered block copolymer films"; *Journal of Materials Chemistry C*, 6, 8194–8204

2 Other contributions

- 2018–2022 F. Aubrit; Development and fabrication of the prototype for the *Vasco Thetis* DLS product; *commercialised by Cordouan Technologies (Spring 2022)*, <https://www.cordouan-tech.com/thetis/>
- 2020 F. Aubrit; Cover image drawing for the N. T. Kim *et al.* article named "In vitro exploration of the synergistic effect of alternating magnetic field mediated thermo-chemotherapy with doxorubicin loaded dual pH- and thermo-responsive magnetic nanocomposite carriers", *Journal of Materials Chemistry B*, 8, 10453–10672

LANGUAGES

- French *Native*
- English *Advanced*
- Spanish *Advanced*
- Italian *Intermediary*
- Russian *Basic*

INTERESTS

- Capoeira
- Tango
- Drawing
- Writing
- Travels (South-Eastern Asia, Middle-East, European cities)