

Arnau Carné Sánchez

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Nationality: Spain
Birth: 17th of July of 1985



Education

- 2010 – Dec 2013 **PhD in Chemistry**, Universitat Autònoma de Barcelona (UAB) and Catalan Institute of Nanociencia and Nanotechnology ICN2.
- Title “Nanoscale Metal-Organic Frameworks: New Synthetic Methods, Materials and Applications”
- Supervisor Prof. Dr. Daniel Maspoch and Dr. Inhar Imaz
- 2008-2009 Master in **Environmental Diagnosis and Management**, University of Cranfield, Bedfordshire, UK.
- Title PRIME – Plastic Recycling by Innovative Metal Catalysed Enterprises
- Supervisor Simon Collinson, Chemistry Fellow at the Open University
- 2008 Erasmus Stage in University of Twente (The Netherlands) in the Catalytic Processes and Materials (CPM) group
- Title “Catalytic oxidative cracking of hexane as a route to olefins.”
- Supervisor Prof. Leon Lefferts and Kulathuier Seshan
- 2003 – 2008 **Chemistry Degree** in Universitat Autònoma de Barcelona (UAB)

Professional experience

- 2014 – 2016 JSPS Postdoctoral researcher at Kyoto University
- 2016 – present Juan de La Cierva postdoctoral fellow at Nanoup group.

Research

- Experience Broad experience in synthesis of Metal Organic Frameworks at the nanoscale.

Techniques Scanning Electronic Microscopy (SEM), Transmission Electron Microscopy (TEM), Dynamic Light Scattering (DLS), Optical fluorescence microscopy, Infrared spectroscopy (IR), X-ray powder diffraction (XRPD), Spray dryer, Relaxivity, NMR spectroscopy.

Languages

Catalan Native

Spanish Native

English Fluent

Certified by the level B2.2 (Common European Framework of Reference)

Computer Skills

Windows, Microsoft Office, Origin, Illustrator and Photoshop, Diamond

Publications

[1] *The selective recycling of mixed plastic waste of polylactic acid and polyethylene terephthalate by control of process conditions.* Arnau Carné Sánchez, Simon Collinson. **European Polymer Journal**, 2011, 47, 1970.

[2] *Nanoscale metal-organic materials.* Arnau Carné Sánchez, Carlos Carbonell, Inhar Imaz, Daniel Maspocho. **Chemical Society Reviews**, 2011, 40, 291.

[3] *A Spray-drying strategy for synthesis of nanoscale metal-organic frameworks and their assembly into hollow superstructures.* Arnau Carné Sánchez, Inhar Imaz, Mary Cano Sarabia, Daniel Maspocho. **Nature Chemistry**, 2013, 5, 203.

[4] *A highly stable nanoscale metal-organic framework made of Cu(II), Gd(III) and the macrocyclic DOTP as a potential MRI contrast agent.* Arnau Carné Sánchez, Célia S. Bonnet, Inhar Imaz, Julia Lorenzo, Éva Tóth, Daniel Maspocho. **Journal of the American Chemical Society**, 2013, 17711

[5] *Synthesis, culture medium stability, and in vitro and in vivo zebrafish embryo toxicity of metal-organic framework nanoparticles.*

Arnau Carné-Sánchez, Inhar Imaz, Kyriakos C Stylianou, Daniel MasPOCH. **Chemistry – European Journal**, 2015, 2508

[6] *Metal–organic frameworks: from molecules/metal ions to crystals to superstructures*. Àngels Ruyra, Amirali Yazdi, Arnau Carné Sánchez, Julia Lorenzo, Nerea Roher, Inhar Imaz, Daniel MasPOCH. **Chemistry – European Journal**, 2014, 5192

[7] *Optimised room temperature, water-based synthesis of CPO-27-M metal–organic frameworks with high space-time yields*. L Garzón-Tovar, Arnau Carné-Sánchez, Carlos Carbonell, Inhar Imaz, Daniel MasPOCH. **Journal of Materials Chemistry A**, 2015, 20819

[8] *Protecting Metal–Organic Framework Crystals from Hydrolytic Degradation by Spray-Dry Encapsulating Them into Polystyrene Microspheres*. Arnau Carné-Sánchez, Kyriakos C Stylianou, Carlos Carbonell, Majid Naderi, Inhar Imaz, Daniel MasPOCH. **Advanced Materials**, 2015, 869

[9] *Lanthanide–Organic Framework Nanothermometers Prepared by Spray-Drying*. Zhuopeng Wang, Duarte Ananias, Arnau Carné-Sánchez, Carlos DS Brites, Inhar Imaz, Daniel MasPOCH, João Rocha, Luís D Carlos. **Advanced Functional Materials**, 2015, 2824

[10] *Post-Synthetic Anisotropic Wet-Chemical Etching of Colloidal Sodalite ZIF Crystals*. Civan Avci, Javier Ariñez-Soriano, Arnau Carné-Sánchez, Vincent Guillerm, Carlos Carbonell, Inhar Imaz, Daniel MasPOCH. **Angewandte Chemie International Edition**, 2015, 14417

[11] *A spray-drying continuous-flow method for simultaneous synthesis and shaping of microspherical high nuclearity MOF beads*. Luis Garzón-Tovar, Mary Cano-Sarabia, Arnau Carné-Sánchez, Carlos Carbonell, Inhar Imaz, Daniel MasPOCH. **Reaction Chemistry & Engineering**, 2016, 533

[12] *pH-Responsive Relaxometric Behaviour of Coordination Polymer Nanoparticles Made of a Stable Macrocyclic Gadolinium Chelate*. Javier Ariñez-Soriano, Jorge Albalad, Arnau Carné-Sánchez, Célia S Bonnet, Félix Busqué, Julia Lorenzo, Jordi Juanhuix, Maxwell W Terban, Inhar Imaz, Éva Tóth, Daniel MasPOCH. **Chemistry-A European Journal**, 2016, 13162

[13] *Rhodium–Organic Cuboctahedra as Porous Solids with Strong Binding Sites*. Shuhei Furukawa, Nao Horike, Mio Kondo, Yuh Hijikata,

Arnau Carné-Sánchez, Patrick Larpent, Nicolas Louvain, Stéphane Diring, Hiroshi Sato, Ryotaro Matsuda, Ryuji Kawano, Susumu Kitagawa. **Inorganic Chemistry**, 2016, 10843

[14] *Light responsive metal-organic frameworks as a controllable CO-releasing cell culture substrate*. Stéphane Diring, Arnau Carne Sanchez, JiCheng Zhang, Shuya Ikemura, Chiwon Kim, Hiroshi Inaba, Susumu Kitagawa, Shuhei Furukawa. **Chemical Science**, 2017, 2381

[15] *Metal-organic cuboctahedra for synthetic ion channels with multiple conductance states*. Ryuji Kawano, Nao Horike, Yuh Hijikata, Mio Kondo, Arnau Carné-Sánchez, Patrick Larpent, Shuya Ikemura, Toshihisa Osaki, Koki Kamiya, Susumu Kitagawa, Shoji Takeuchi, Shuhei Furukawa. **Chem**, 2017, 393

[16] *Hollow carbon nanobubbles: monocrystalline MOF nanobubbles and their pyrolysis*. Wei Zhang, Xiangfen Jiang, Yanyi Zhao, Arnau Carné-Sánchez, Victor Malgras, Jeonghun Kim, Jung Ho Kim, Shaobin Wang, Jian Liu, Ji-Sen Jiang, Yusuke Yamauchi, Ming Hu. **Chemical Science**, 2017, 3538

[17] *Self-assembly of polyhedral metal-organic framework particles into three-dimensional ordered superstructures*. Civan Avci, Inhar Imaz, Arnau Carné-Sánchez, Jose Angel Pariente, Nikos Tasios, Javier Pérez-Carvajal, Maria Isabel Alonso, Alvaro Blanco, Marjolein Dijkstra, Cefe López, Daniel MasPOCH. **Nature Chemistry**, 2018, 78

Congress

[1] Escuela Nacional De Materiales Moleculares 2011, Castelló, Spain, Poster

[2] VII Jornada de Joves Investigadors dels Països Catalans 2012, Mallorca, Spain, Oral presentation

[3] III International Conference on Metal-Organic Frameworks and Open Framework Compounds 2012, Edinburgh, UK, Poster presentation

[4] IV International Conference on Metal-Organic Frameworks and Open Framework Compounds 2014, Kobe, Japan, Poster presentation

[5] The international chemical congress of Pacific basin societies (Pacifichem) 2015, Hawaii, USA, Oral presentation

[6] The international chemical congress of Pacific basin societies (Pacifichem) 2015, Hawaii, USA, Oral presentation

[6] The 96th CSJ Annual Meeting 2016, Kyoto, Japan, Oral presentation

Patents

Method for the preparation of metalorganic frameworks. Daniel Maspoch, Inhar Imaz, Arnau Carné Sánchez, Mary Cano Sarabia. EP11183773.8

Referees

Prof. Dr. D.

Maspoch

ICREA Research Professor, Head of the Supramolecular NanoChemistry and materials group.

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Dr Célia

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Head of research in Complexes Métalliques pour Applications biomédicales group.

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Prof. Shuhei

Head of the research group Mesoscopic Coordination Chemistry Group (Kitagawa Laboratory).

Furukawa

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Prof. Susumu

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