

Zacharias AMARA
Curriculum Vitae

Research Experience

- Jan. 2016–present **Assistant Professor: Laboratory of Molecular Chemistry, Engineering of Chemical and Energy Processes, National Conservatory of Arts and Crafts**
- Research: *Development of greener methods for the production of pharmaceuticals*
 - Scientific advisor for Green Chemistry startup companies incubated @ Cnam
- Sep. 2015–Dec. 2015 **Postdoctoral Researcher: Laboratory of Organic Chemistry, School of Industrial Physics and Chemistry, ParisTech and Pierre-Gilles de Gennes Institute for Microfluidics**
- Synthesis of polymerizable surfactants and nanoparticles encapsulation*
Pr. Janine Cossy & Pr. Patrick Tabeling
- Microflusa project (EU FP7): Colloidal materials with microfluidics
- Oct. 2012–Sep. 2015 **Postdoctoral Researcher: Department of Inorganic and Materials Chemistry, School of Chemistry, University of Nottingham**
- Catalysis and Continuous-Flow Processing*
Pr. Martyn Poliakoff & Pr. Michael W. George: Clean Technology Group
- C2ML project (EPSRC): Photochemical manufacturing
 - Artemisinin project (Sanofi, Gates Foundation): Photochemical oxidations
 - Synflow project (EU FP7): Challenging heterogeneous hydrogenations
 - Heterogenized asymmetric enamide hydrogenations
 - Bimetallic nanoparticles for amide and ester hydrogenations
 - Glivec project: Challenging amide coupling reactions
 - Cloud Chemistry and Automated Synthesis

Teaching Experience

- Jan. 2016–present **Assistant Professor: National Conservatory of Arts and Crafts**
(196 hours/year)
Regular classroom based approaches and e-learning
- *Organic Chemistry*: Tutorials and practical courses
 - *Formulation Chemistry*: In charge of the entire teaching unit
 - *Chemical Biology*: Courses and tutorials in Biosynthesis
- Oct. 2014–Jul. 2015 **Academic Tutor: School of Chemistry, University of Nottingham**
(30 hours/year)
- *Organic Chemistry*: Module Year 1 tutorial
- Sep. 2008–Jul. 2011 **Academic Monitor: School of Pharmacy, Paris-Sud University**
(64 hours/year)
- *Organic Chemistry*: Module Year 1 & Year 2 tutorials and practical courses

Education

- Sep. 2008–Jul. 2012 **PhD in Organic Chemistry, School of Pharmacy, Paris-Sud University**
Conception and synthesis of pyrrolidine analogues of Lobelia alkaloids as potential neuronal nicotinic acetylcholine receptors (highest level of distinction)
Supervisor: Pr. Delphine Joseph, BioCIS-CNRS Laboratory
- Sep. 2008–Feb. 2011 **PharmD, School of Pharmacy, Paris-Sud University**
Role of Lobelia alkaloids in dopamine-based therapies (thesis prize)
Supervisor: Pr. Delphine Joseph, BioCIS-CNRS Laboratory
- Sep. 2006–Jul. 2008 **M. Res. Organic Chemistry, School of Pharmacy, Paris-Sud University**
High pressure activation of Michael and aza-Michael additions (ranked first)
Supervisor: Pr. Delphine Joseph, BioCIS-CNRS Laboratory
- Sep. 2001–Jul. 2006 **Pharmaceutical degree School of Pharmacy, Paris-Sud University**

Awards, Fellowships & Memberships

- 2018 (PI): Fonds de Recherche France Canada, *Supports Synergiques pour la Photocatalyse* (USD 13,500)
- 2018 (PI): Bill & Melinda Gates Foundation, *Novel Artemisinin Manufacturing Technologies* (USD 375,000)
- 2017 (PI): American Chemical Society, Green Chemistry Institute, *Ignition Grant* (USD 25,000)
- 2016: Junior Professorship M2, TU Braunschweig, *declined*
- 2014: Poster Prize Dechema 7th Green Solvents Conference (Dresden)
- 2012: Pharmacy Laureate (Thesis prize, Université Paris-Sud)
- 2008: Postgraduate Merit Scholarship (French Ministry of Science, Education & Technology)
- 2008: Postgraduate Scholarship (Servier, French Medicinal Chemistry Society), *declined*
- Member of the French Chemical Society since 2016, Member of the Royal Society of Chemistry since 2015
- Reviewer: *RSC Adv.*, *New J. Chem.*, *ACS Sustainable Chem. Eng.*,
Org. Process Res. Dev., *React. Chem. Eng.*, *Org. Lett.*

14. "Outer-Sphere Effects in Visible-Light Photochemical Oxidations with Immobilized and Recyclable Ruthenium Bipyridyl Salts" B. Tambosco, K. Segura, C. Seyrig, D. Cabrera, M. Port, C. Ferroud, Z. Amara*, *ACS Catal.* **2018**, 8, 4383 [10.61, 0]
13. "Continuous Photo-Oxidation in a Vortex Reactor : Efficient Operations using Air Drawn from the Laboratory" D. S. Lee, Z. Amara, C. Clark, Z. Xu, K. Zeyuan, M. Bruce, H. Morvan, S. Pickering, M. Poliakoff*, M. George*, *Org. Process Res. Dev.* **2017**, 21, 1042 [2.53, 12]
12. "Continuous Niobium Phosphate Catalysed Skraup Reaction for Quinoline Synthesis from Solketal" J. Jin, S. Guidi, Z. Abada, Z. Amara, M. Selva, M. W. George, M. Poliakoff*, *Green Chem.* **2017**, 19, 2439 [9.13, 8]
11. "Enabling the Scale-Up of a Key Asymmetric Hydrogenation Step in the Synthesis of an API Using Continuous Flow Solid-Supported Catalysis" Z. Amara, M. Poliakoff*, R. Duque, D. Geier, G. Franciò*, C. M. Gordon, R. E. Meadows, R. Woodward, W. Leitner*, *Org. Process Res. Dev.* **2016**, 20, 1321 (ACS Editors' Choice, open access) [2.53, 18]
10. "Automated Serendipity in Self-Optimised Continuous Flow Reactors" Z. Amara*, R. A. Skilton, E. Streng, J. Jing, M. W. George, M. Poliakoff*, *Eur. J. Org. Chem.* **2015**, 6141 [3.07, 15]
9. "Investigating Scale up and Further Applications of DABAL-Me₃ Promoted Amide Couplings" D. S. Lee*, Z. Amara*, M. Poliakoff, T. Harman, G. Reid, B. Rhodes, S. Brough, T. McNally, S. Woodward*, *Org. Process Res. Dev.* **2015**, 19, 831 [2.53, 7]
8. "Applying Green Chemistry to the Photochemical Route to Artemisinin" Z. Amara, J. F. B. Bellamy, R. Horvath, S. J. Miller, A. Beeby, A. Burgard, K. Rossen,* M. Poliakoff*, M. W. George*, *Nature Chem.* **2015**, 7, 489 (Highlighted by J. S. Yeston, *Science*, **2015**, 348, 6239) [25.87, 59]
7. "Photocatalytic Hydroxylation of Boronic Acids using Continuous Flow Reactors" I. G. T. M. Penders, Z. Amara, R. Horvath, K. Rossen, M. Poliakoff, M. George*, *RSC Adv.* **2015**, 5, 6501 [3.29, 18]
6. "Remote-controlled experiments with cloud-chemistry" R. A. Skilton, R. A. Bourne, Z. Amara, R. Horvath, J. Jin, M. J. Scully, E. Streng, S. L. Y. Tang, P. A. Summers, J. Wang, E. Pérez, N. Asfaw, G. L. P. Aydos, J. Dupont, G. Comak, M. W. George, M. Poliakoff*, *Nature Chem.* **2015**, 7, 1 [25.87, 27]
5. "Switchable Stereocontrolled Divergent Synthesis Induced by Aza-Michael of Deactivated Primary Amines and Acid Catalysis" Z. Amara, E. Drège, C. Troufflard, P. Retailleau, M.-Tran Huu-Dau, D. Joseph*, *Chem. Eur. J.* **2014**, 20, 15840 [5.37, 11]
4. "Thermodynamic Epimeric Equilibration and Crystallisation-Induced Dynamic Resolution of Lobelanine, Norlobelanine and Related Analogues" Z. Amara, G. Bernadat, P.-E. Venot, P. Retailleau, C. Troufflard, F. Le Bideau*, D. Joseph*, *Org. Biomol. Chem.* **2014**, 12, 9797 (Front Cover Picture) [3.56, 9]
3. "Recent Contributions from the Aza-Michael Reaction to Asymmetric Alkaloids Total Synthesis" Z. Amara, J. Caron, D. Joseph*, *Nat. Prod. Rep.* **2012**, 30, 1211 [11.01, 64]
2. "Solvent-Free Double Aza-Michael under Ultrasound Irradiations: Diastereoselective Sequential One-Pot Scalable Synthesis of Pyrrolidine Lobelia Alkaloids Analogues" Z. Amara, E. Drège, C. Troufflard, P. Retailleau, D. Joseph*, *Org. Biomol. Chem.* **2012**, 10, 7148 [3.56, 26]
1. "Amine Mediated Tandem Conjugative Isomerisation-Bridging Michael Addition: Concise Synthesis of 1-Azabicyclo[3.3.1]nonane" A. N. Ngo, K. El Kassimi, Z. Amara, E. Drège, D. Joseph*, *Tetrahedron Lett.* **2012**, 53, 3296 [2.38, 2]

Selected List of Oral Communications (total 10), (Poster Communications = total 14)

- 9ème Symposium Francophone de Synthèse Totale, SFST9 (Nantes – 2019) Titre à confirmer [Invited lecture]
- 27th IUPAC Photochemistry (Dublin, Ireland – 2018) *Visible-Light Photochemical Reactions with Immobilized and Recyclable Photocatalysts* [Oral presentation]
- Institute of Molecular Chemistry Reims (Reims, France– 2018) *Immobilization of Photocatalysts and Continuous Flow Photochemistry: a Study of the Reactivity and Intensification of Photo-Oxidation Processes* [Invited lecture]
- 6th EuCheMS Chemistry Congress (Seville, Spain – 2016) *Industrial Applications of Immobilized Catalysis in Flow* [Oral presentation]
- 3rd International Symposium on Green Chemistry (La Rochelle, France – 2015) *Continuous Flow Heterogeneous Catalytic Pharmaceutical Synthesis* [Oral presentation]