

CURRICULUM VITAE

Ragazzon Giulio

15 December, 2020

Name: Giulio
Surname: Ragazzon
Date of birth: 21 August, 1989

Professional experience

Junior Professor *April 2021 (expected) -*
Institut de Science et d'Ingénierie Supramoléculaires (ISIS)
Université de Strasbourg and CNRS, France
Principal investigator of the Laboratory of Driven Chemical Processes

Research fellow (RTDA) in chemistry *November 2018 - March 2021 (expected)*
University of Trieste, Italy
Mentor: Prof. M. Prato
Research topic: carbon nanodots and non-equilibrium systems.
I have contributed to deepen the structural characterization of carbon dots and expanded the potential of chiral carbon dots. See e.g. publication #28 I have also been involved in the management of the group, including grant preparation. In 2020 Prof. Prato and his team were awarded the ERC Advanced grant with the project e-DOTS.

Postdoctoral researcher *January 2017, June 2018*
University of Padova, Italy
Supervisor: Prof. L. J. Prins
Research topic: non-equilibrium self-assembly.
I have contributed to introduce the concept of molecular ratchets in the field of non-equilibrium self-assembly. See publication #23

Education

PhD Student in Chemistry *January 2014, December 2016*
University of Bologna, Italy *defended May 2017*
Supervisor: Prof. A. Credi
Research topic: molecular devices and machines.
I have contributed to the development of the first autonomous self-assembling artificial molecular machine, a light-driven molecular pump. See publication #4

Master degree in Photochemistry and Molecular Materials *October 2011, October 2013*
University of Bologna, Italy
110/110 cum Laude

Bachelor degree in Chemistry *October 2008, July 2011*
University of Trieste, Italy
110/110 cum Laude

High school diploma *September 2003, July 2008*
Liceo Scientifico "J. da Ponte", Italy
100/100

Publications

I am author of 29 peer-reviewed publications, also in renowned journals like Nature Nanotechnology (2), Angewandte Chemie (5), Chem (2) and PNAS (1). The publications that I co-authored received collectively more than 700 citations (Google Scholar).

29. "Optical processes in carbon nanocolloids"
G. Ragazzon,* A. Cadranet, E. V. Ushakova, Y. Wang, D. M. Guldi,* A. L. Rogach,* N. A. Kotov,* M. Prato* *Chem*, **2020**, in press, DOI:10.1016/j.chempr.2020.11.012.
28. "Mapping the Surface Groups of Amine-Rich Carbon Dots Enables Covalent Catalysis in Aqueous Media"
G. Filippini,* F. Amato, C. Rosso, **G. Ragazzon**,* A. Vega-Peñaloza, X. Companyó,* L. Dell'Amico, M. Bonchio, M. Prato* *Chem*, **2020**, 6, 3022 - 3037.
27. "Disulfide-linked allosteric modulators for multi-cycle kinetic control of DNA-based nanodevices"
E. Del Grosso, I. Ponzo, **G. Ragazzon**, L. J. Prins, F. Ricci *Angew. Chem. Int. Ed.*, **2020**, 59, 21058 - 21063.
26. "Individual-molecule perspective analysis of chemical reaction networks: the case of a light-driven supramolecular pump"
A. Sabatino, E. Penocchio, **G. Ragazzon**, A. Credi, D. Frezzato *Angew. Chem. Int. Ed.*, **2019**, 58, 14341 - 14348.
25. "Fuel-responsive allosteric DNA-based aptamers for the transient release of ATP and cocaine"
E. Del Grosso, **G. Ragazzon**, L. J. Prins, F. Ricci *Angew. Chem. Int. Ed.*, **2019**, 58, 5582 - 5586. Journal back cover.
24. "Substrate-induced self-assembly of cooperative catalysts"
P. Solís Muñana⁺, **G. Ragazzon**⁺, J. Dupont, C. Z.-J. Ren, L. J. Prins, J. L.-Y. Chen *Angew. Chem. Int. Ed.*, **2018**, 57, 16469 - 16474.
23. "Energy consumption in chemical-fuel driven self-assembly"
G. Ragazzon, L. J. Prins. *Nat. Nanotechnol.*, **2018**, 13, 882 - 889.
22. "Redox-Switchable Calix [6] arene-Based Isomeric Rotaxanes"
V. Zanichelli, M. Bazzoni, A. Arduini, P. Franchi, M. Lucarini, **G. Ragazzon***, A. Secchi*, S. Silvi*, *Chem. Eur. J.*, **2018**, 24, 12370-12382. Special issue: young chemist's.
21. "Pt⁰₂ clusters within a MOF catalyse low-temperature cyanide production, CO₂ methanation and alkene hydrogenation"
M. Mon, M. A. Rivero-Crespo, J. Ferrando-Soria, A. Vidal-Moya, A. Leyva-Pérez, A. Corma, J. C. Hernández-Garrido, M. López-Haro J. J. Calvino, **G. Ragazzon**, A. Credi, D. Armentano, E. Pardo *Angew. Chem. Int. Ed.*, **2018**, 57, 6186 - 6191.
20. "Dissipative synthetic DNA-based receptors for the transient load and release of molecular cargo"
E. Del Grosso, A. Amodio, **G. Ragazzon**, L. J. Prins, F. Ricci *Angew. Chem. Int. Ed.*, **2018**, 57, 10489 - 10493. Journal back cover.
19. "Remote electrochemical modulation of pK_a in a rotaxane by co-conformational allostery"
G. Ragazzon, C. Schäfer, P. Franchi, S. Silvi, B. Colasson, M. Lucarini, A. Credi, *Proc. Nat. Acad. Sci. U.S.A.*, **2018**, 115, 9385 - 9390.
18. "Electrochemically Triggered Co-Conformational Switching in a [2] catenane Comprising a Non-Symmetric Calix [6] arene Wheel and a Two-Station Oriented Macrocyclic"
V. Zanichelli, L. Dallacasagrande, A. Arduini, A. Secchi, **G. Ragazzon**, S. Silvi, A. Credi, *Molecules*, **2018**, 23, 1156.

17. "Efficient supramolecularly-assisted synthesis of calix[6]arene-based oriented pseudorotaxanes and rotaxanes"
G. Orlandini, **G. Ragazzon**, V. Zanichelli, A. Secchi, S. Silvi, M. Venturi, A. Arduini, A. Credi, *Org. Biomol. Chem.*, **2017**, 15, 6753.
16. "Electrochemically controlled supramolecular switches and machines"
G. Ragazzon, M. Baroncini, P. Ceroni, A. Credi, M. Venturi in "Comprehensive Supramolecular Chemistry II", J. Atwood, G. Gokel (Eds.), Elsevier, Oxford, Vol. 2, pp 343 - 368.
15. "Covalent capture of oriented calix[6]arene rotaxanes by a metal-free active template approach"
G. Orlandini, **G. Ragazzon**, V. Zanichelli, A. Secchi, S. Silvi, M. Venturi, A. Arduini, A. Credi, *ChemComm*, **2017**, 53, 6172.
14. "Thermodynamic insights on a bistable acid-base switchable molecular shuttle with strongly shifted co-conformational equilibria"
G. Ragazzon, A. Credi, B. Colasson, *Chem. Eur. J.*, **2017**, 23, 2149 - 2156.
13. "Plugging a bipyridinium axle into multichromophoric calix[6]arene wheels bearing naphthyl units at different rims"
G. Orlandini, **G. Ragazzon**, V. Zanichelli, L. Degli Esposti, M. Baroncini, S. Silvi, M. Venturi, A. Credi, A. Secchi, A. Arduini, *ChemistryOpen*, **2017**, 6, 1, 64 - 72.
12. "Azobenzene photoisomerization: an old reaction for activating new molecular devices and materials"
M. Baroncini, **G. Ragazzon**, S. Silvi, M. Venturi, A. Credi, in *Photochemistry: Volume 44*, **2016**, A. Albini, E. Fasani (Eds.), RSC Press, Cambridge, pp. 296-323.
11. "Light-driven molecular machines based on Ruthenium polypyridine complexes: strategies and recent advances"
B. Colasson, A. Credi, **G. Ragazzon**, *Coord. Chem. Rev.*, **2016**, 325, 125 - 134.
10. "Structural changes of a doubly spin-labelled chemically driven molecular shuttle probed by PELDOR spectroscopy"
P. Franchi, V. Bleve, E. Mezzanina, C. Schäfer, **G. Ragazzon**, M. Albertini, D. Carbonera, A. Credi, M. Di Valentin, M. Lucarini, *Chem. Eur. J.*, **2016**, 22, 8745 - 8750. Journal inside back cover.
9. "Synthesis and characterization of constitutionally isomeric oriented calix[6]arene-based rotaxanes"
V. Zanichelli, **G. Ragazzon**, A. Arduini, A. Credi, P. Franchi, G. Orlandini, M. Venturi, M. Lucarini, A. Secchi, S. Silvi, *Eur. J. Org. Chem.*, **2016**, 1033 - 1042.
8. "An artificial molecular transporter"
C. Schäfer, **G. Ragazzon**, B. Colasson, M. La Rosa, S. Silvi, A. Credi, *ChemistryOpen*, **2016**, 5, 2, 120 - 124.
7. "Synthesis by ring closing metathesis and properties of an electroactive calix[6]arene [2]catenane"
G. Orlandini, V. Zanichelli, A. Secchi, A. Arduini, **G. Ragazzon**, A. Credi, M. Venturi, S. Silvi, *Supramol. Chem.*, **2016**, 28, 427 - 435.
6. "Light powered artificial molecular pumps: a minimal approach"
G. Ragazzon, M. Baroncini, S. Silvi, M. Venturi, A. Credi, *Beilstein J. Nanotechnol.*, **2015**, 6, 2096 - 2104.
5. "The eternal youth of azobenzene: new photoactive molecular and supramolecular devices"
M. Baroncini, **G. Ragazzon**, S. Silvi, M. Venturi, A. Credi, *Pure Appl. Chem.*, **2015**, 87, 6, 537 - 545.

4. "Light-powered autonomous and directional molecular motion of a dissipative self-assembling system"
G. Ragazzon, M. Baroncini, S. Silvi, A. Credi, *Nat. Nanotechnol.*, **2015**, 10, 70 - 75. Personally designed journal cover. Highlights: E. Sevick, *Nat. Nanotechnol.*, **2015**, 10, 18 - 19; O. Graydon, *Nat. Photon.*, **2015**, 9, 13.
3. "Photochemically controlled molecular machines with sequential logic operation"
T. Avellini, M. Baroncini, **G. Ragazzon**, S. Silvi, M. Venturi, A. Credi, *Isr. J. Chem.*, **2014**, 54, 553 - 567.
2. "Ruthenium(II) Complexes Based on Tridentate Polypyridine Ligands that Feature Long-lived Room-Temperature Luminescence"
G. Ragazzon, P. Verwilt, S. A. Denisov, A. Credi, G. Jonusauskas, N. D. McClenaghan, *ChemComm*, **2013**, 49, 9110 - 9112.
1. "Design of photoactivable metallodrugs: selective and rapid light-induced ligand dissociation from half-sandwich [Ru(9)aneS₃(N-N')(py)]²⁺ complexes"
G. Ragazzon, I. Bratsos, E. Alessio, L. Salassa, A. Habtemariam, R. J. McQuitty, G. J. Clarkson, P. J. Sadler, *Inorg. Chim. Acta*, **2012**, 393 - Special Issue: Metals in Medicine, 230 - 238.

+ equal contribution

* corresponding author

Divulgative articles

3. "Molecole a senso unico", (One way molecules - in italian)
G. Ragazzon. Independent contribution to "European Young Chemist Award: premiata la Chimica Italiana"
M. Pavone, G. Ragazzon, D. Leonori, F. Monti, F. Bella *La Chimica e l'Industria WEB*, **2016**, 3, 8 - 13.
2. "Pompe molecolari azionate dalla luce" (Light-driven molecular pumps - in italian)
G. Ragazzon, M. Baroncini, S. Silvi, M. Venturi, A. Credi, *La Chimica e l'Industria*, **2015**, 97, 35 - 39.
1. "Molecole in azione" (Molecules in action - in italian)
G. Ragazzon, *Sapere*, **2015**, 2, 45.

Research stays

Prof. T. Aida

August 2015, February 2016

The University of Tokyo/Riken Center, Wako, Japan

Research topic: radical-based supramolecular polymers

Dr. N. D. McClenaghan

August 2013, December 2013

Institute des Sciences Moléculaires UMR 5255 CNRS/Université Bordeaux I, France

Research topic: photoactive metal complexes (publication #2)

Prof. P. J. Sadler

February 2011, June 2011

Warwick University, UK

Research topic: metal complexes with potential anticancer activity (publication #1)

Awards & scholarships

International:

European Young Chemist Award - PhD Level, gold medal *September 2016*

The European Young Chemist Award is the most important european recognition in chemistry at the PhD level.

National:

Junior prize “Organic chemistry for the environment, energy and nanoscience” - Italian Chemical Society (based on post-doctoral work) *September 2019*

Best PhD thesis in photochemistry 2017 - Italian Group of Photochemistry
September 2017

Best PhD thesis in inorganic chemistry 2017 - Italian Chemical Society *June 2017*

Levi prize 2016 - mention *April 2017*

Levi Prize recognizes an outstanding contribution (publication #4) from a young member of the Italian Chemical Society.

NEST prize 2014 for research in nanoscience *November 2015*

NEST prize is awarded to the first author of the best italian paper of the year in experimental nanoscience (publication #4).

Scholarships:

Collegio Superiore Student *September 2011, June 2014*
Università di Bologna, Italy

Collegio Superiore is the Excellence Institution of Bologna University: only about one student every thousand belongs to this Institution (for more information please visit www.collegio.unibo.it).

Collegio Univeritario per le Scienze “Luciano Fonda” Student
Università degli Studi di Trieste, Italy *September 2008, July 2011*

A merit-based scholarship (for more information please visit www.collegiofonda.it)

Invited presentations at Institutes

6. “Non-equilibrium motion and assembly at the nanoscale”, ISIS, Strasbourg, 12 October 2020
5. “A chemical view on artificial energy transduction”, University of Luxembourg (host: Prof. Esposito), Luxembourg, 23 September 2019
4. “The common origin of nonequilibrium motion and assembly”, ISIS (host: Prof. Hermans), Strasbourg, 20 September 2019
3. “Molecular machines at equilibrium and away from it”, University of Trieste, Trieste, 18 December 2017
2. “Energy landscape of molecular machines”, Université de Lorraine - CNRS, Nancy, 3 November 2016
1. “Energy landscape of supramolecular systems”, ISOF-CNR, Bologna, 16 June 2016

Invited presentations

6. 49th National Congress of the Organic Chemistry Division of the Italian Chemical Society, 8 - 12 September 2019, Torino, Italy
Oral presentation (**keynote**)
5. “Self-assembly away from equilibrium”, Modena Award, 3 May 2019, Padova, Italy
Invited talk
4. 46th National Congress of Inorganic Chemistry, 10 - 13 September 2018, Bologna, Italy
Oral presentation (**keynote**)
3. Italian Photochemistry Meeting 2017, 14 - 16 December 2017, Perugia, Italy
Oral presentation (**keynote**)
2. CV clinic Day 2017, 10 April 2017, Bologna, Italy
Levi Prize mention recipient talk (**keynote**)
1. NanotechItaly, November 25 - 28, 2015, Bologna, Italy
NEST prize recipient talk (**keynote**)

Participation to conferences, schools & workshops - excluded keynote lectures

Besides invited presentations, I participated to 16 meetings, presenting 9 contributed talks and 6 posters (3 poster prizes awarded, on 3 different topics).

16. Colloquium: “Machine learning meets chemistry”, February 17 - 18, 2020, Turin, Italy
15. Workshop on Low-Dimensional Materials, July 22-23, 2019, San Sebastian, Spain
Oral presentation
14. Perspectives in Supramolecular Chemistry, July 15, 2019, Padova, Italy
Oral presentation
13. European Winter School of Physical Organic Chemistry, January 27 - February 1, 2019, Bressanone, Italy
Poster presented, **poster prize winner**
12. 12th International Symposium on Supramolecular and Macrocyclic Chemistry ISMSC 2017, July 2 - 6, 2017, Cambridge, UK
Poster presentation
11. Supramol2017, 18 - 21 June 2017, Santa Margherita di Pula, Italy
Oral presentation
10. 12th EChems Meeting, 6 - 9 June 2017, Milano Marittima, Italy
Oral presentation
9. Joint Congress of the French and Italian Photochemists and Photobiologists, November 19 - 22, 2016, Bari, Italy
Oral presentation
8. 6th EuCheMS Chemistry Congress, 11 - 15 September 2016, Seville, Spain
Oral presentation and European Young Chemist finalist talk
7. 5th International Conference on Molecular Sensors and Molecular Logic Gates MSMLG 2016, 24 - 28 July, 2016, Bath, UK
Poster presented, **poster prize winner**

6. CEMSupra 2016, January 13 - 14, 2016, Tokyo, Japan
Poster presented
5. 10th International Symposium on Supramolecular and Macrocyclic Chemistry ISMSC 2015, June 28 - July 2, 2015, Strasbourg, France
Oral presentation
4. Italian Photochemistry Meeting, November 27 - 29, 2014, Besate, Italy
Oral presentation
3. TSRC Workshop "Molecular Rotors, Motors and Switches", June 30 - July 4, 2014, Telluride (CO), USA
Poster presented
2. European Winter School of Physical Organic Chemistry, February 2 - 7, 2014, Bressanone, Italy
Poster presented, **poster prize winner**
1. VI Corso Nazionale di Introduzione alla Fotochimica (VI national introductory course to photochemistry), June 3 - 6, 2013, Bologna, Italy

Reviewer activity

I served as a reviewer for ACS Applied Polymer Materials, ACS Nano, Nature Communications, Chemical Communications and Photochemical and Photobiological Sciences.

I served as a young reviewer (supervised) for ACS Nano, Advanced Functional Materials, Advanced Materials, Angewandte Chemie, Chemical Science, Chemical Society Reviews, JACS, Nanoscale, Nature Communications, Nature Nanotechnology, Materials Today.

Teaching activities

Appointed teacher:

Organic Chemistry II - Laboratory course. Undergraduate degree in Science and technology for environment and nature (2nd year undergraduate students). University of Trieste AY 2018/2019, 2019/2020 and 2020/2021, 36 hours, ca. 40 students

Tutor:

Organic Chemistry I - exercises. Undergraduate degree in Chemistry (1st year undergraduate students). University of Trieste AY 2018/2019 and 2020/2021, 12 hours, ca. 30 students

Laboratory assistant for the 3rd organic chemistry lab in the chemistry undergraduate degree (3rd year undergraduate students), Padova University, AY 2016/2017 and 2017/2018, for a total of 83 hours)

Laboratory assistant for the general chemistry lab in the chemistry undergraduate degree (1st year undergraduate students), Bologna University, AY 2014/2015 and 2015/2016, for a total of 93 hours)

Laboratory assistant for the ecology and chemistry course (teaching of chemistry) in the education science course (4th and 5th year undergraduates, 16 hours), Bologna University, AY 2014/2015

Language skills

Italian mother tongue

English fluent

Other interests

In addition to my scientific duties I also enjoy science divulgation (see e. g. www.esperluette-research-outreach.com) and took part in a few science festivals and divulgative conferences.