Prof. Luca Dell'Amico (Università di Padova)

Mechanistic investigations in light-driven synthetic chemistry. From direct photochemistry to organophotoredox catalysis

In this presentation, I will focus on two different topics from my research group, moving from direct photochemistry to photoredox catalysis.

- We have performed in-depth mechanistic investigation on light-mediated [2+2] heterocycloaddtions, that have allowed us to gain control of the diastereoselectivity of this process.^{1a} We were able to deliberately switch the stereochemistry by just selecting the lightsource from UV- to visible-light.^{1b}
- 2) We have designed and developed a new class of organophotoredox catalysts (PCs) capable of activating redox inert substrates towards reduction. To do so, we have exploited an unprecedented catalytic proton-coupled electron-transfer (PCET) mechanism.² By using the same PCs, we were also able to promote atom-transfer-radical polymerization processes under batch and flow conditions.

¹a) Mateos J. Rigodanza; F., Costa, P.; Natali, M.; Vega-Peñaloza, A.; Fresch, E.; Collini, E.; Bonchio, M.; Sartorel, A.; Dell'Amico, L. *Nat. Synth.* **2022**, *2*, 26–36. b) Franceschi, P.; Cuadros, S.; Goti, G.; Dell'Amico, L. *Angew. Chem. Int. Ed.* **2023**, *62*, e20221720.

² Bortolato, T.; Simionato, G.; Vayer, M.; Rosso, C.; Paoloni, L.; Benetti, E. M.; Sartorel, A.; Lebœuf, D.; Dell'Amico, L. *J. Am. Chem. Soc.* **2023**, 145, 1835–1846.

Short CV

EDUCATION AND CAREER HISTORY

11/2021 – present. Associate Professor in Organic Chemistry, University of Padova, Italy.

11/2019 – 11/2021. Assistant Professor (tenured), University of Padova, Italy.

10/2016 – 11/2019. Researcher (fixed term), University of Padova, Italy.

04/2014 – 09/2016. Marie-Curie Postdoctoral Fellow (Prof. Paolo Melchiorre), ICIQ, Spain.

01/2011 – 03/2014. PhD in Synthetic Chemistry (Prof. Franca Zanardi), University of Parma, Italy.

08/2012 – 04/2013. Visiting PhD (Prof. Karl Anker Jørgensen), Aarhus University, Denmark.

10/2004 – 07/2010. MSc. in Medicinal Chemistry (Prof. Giovanni Casiraghi), University of Parma, Italy. **SELECTED AWARDS AND DISTINCTIONS**

2023 Scientific Habilitation as Full Professor - Evaluation of CV and teaching experience.

2022 EuChemS representative at the American Chemical Society Meeting – ACS Fall 2022, Chicago, USA.

2021 ERC-Starting Grant 2021. CV & Research Project Evaluation (European Research Council).

2021 STARS-Grant. CV & Research Project Evaluation (Padova University).

2020 JSP (Junior Scientists Participations) fellow – by the Swiss Chemical Society. To participate at the Bürgenstock Conference 2020 (postponed). I am one of the few participants selected for an oral presentation.

2020 YourJOC Talents collection in Eur. JOC (*Eur. J. Org. Chem.* 2020, *43*, 6718–6722, Journal Front Cover). Showcases research for emerging researchers in the field of organic chemistry across the globe.

2020 Thieme Chemistry Journals Award - *To up-and-coming researchers worldwide who are in* the early stages of their independent academic career. I was the first researcher based in Italy to receive this award since 2007.

2019 Giacomo Ciamician Medal 2019, from the Italian Chemical Society – awarded by the Italian Chemical Society (SCI). The highest national recognition for an organic chemist younger than 40.

2018 Chem. Comm. Emerging Investigators Issue (Chem. Comm. 2018, 54, 6820-6823) - Profiling the very best research from scientists in the early stages of their independent careers. I was the only researcher based in Italy to be profiled.

2016 Marie-Curie Cofund Fellowship, CV & Research Project Evaluation - ICIQ, Spain.

2014 PhD Highest Honors & Doctor Europaeus Mention, University of Parma, Italy.

