

CARLOTTA RAVIOLA

Curriculum Vitae et Studiorum

• PERSONAL INFORMATION



NAME/SURNAME: Carlotta Raviola

BORN: January 13, 1988 in Pavia (PV), Italy

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• RESEARCH ACTIVITY

Since november 2014 Carlotta Raviola is a postdoctoral research fellow at the Department of Chemistry (Organic Chemistry Section-PhotoGreen Lab) of the University of Pavia under the supervision of Proff. A. Albinì, M. Fagnoni and S. Protti. Her research focuses on the photogeneration of highly reactive species (aryl cations, aryl radical) for metal-free processes and as a source of new intermediates including didehydroaromatics. Experimental work is supported by theoretical activity through the use of high performance computing facilities (HPC@CINECA) accessed by projects awarded by ISCRA where Carlotta Raviola has been involved in the role of collaborator. As a post-doc she has been involved in three research projects founded by Cariplo Foundation entitled “New materials for direct nanopatterning and nanofabrication by EUV and soft X-rays exposures” (supervisor: prof. M. Fagnoni), “The Carbon Age of Superconductivity: Organic Superconductors and their Synthesis, Characterization and Theoretical Modelling” (supervisor: prof. A. Albinì) and “Visible Light Generation of Reactive Intermediates from Azosulfones” (supervisor: prof. S. Protti).

Her scientific work is accompanied by her support to teaching activities through assistance in laboratory courses and lectures (for Degrees in Chemistry, Biotechnology, Biological Science and Geology).

• EDUCATION

She is currently a member of the Italian Chemistry Society (SCI), the Italian Photochemistry Group (GIF) and the European Photochemistry Association (EPA).

01/11/2011-31/10/2014: PhD student in Chemical Science at the Department of Chemistry (Organic Chemistry Section-PhotoGreen Lab) of the University of Pavia. The thesis “Generation and reactivity of aryl cations and their applications” was defended on January 29, 2015 (TUTOR: prof. A. Albinì). She spent part of her PhD period at the Technische Universität München in the group of Prof. Thorsten Bach working on the development of stereoselective photoreactions.

December 2011: state examination to practice the profession of chemist.

2009-2011: M.Sc. thesis in Chemistry at the University of Pavia. The thesis "Nuovi precursori per processi di arilazione via fenil catione" (SUPERVISOR: prof. A. Albini) was defended on July 21, 2011 (110/110 cum laude).

2006-2009: B.Sc thesis in Chemical Science at the University of Pavia. The tesi "Alchilazione di aromatici via trasferimento di elettrone fotoindotto" (SUPERVISOR: prof. A. Albini) was defended on July 23, 2009 (110/110).

2001-2006: high school leaving qualification in classical studies at Liceo Classico San Giorgio in Pavia (Italy) (100/100).

• Scientific Contribution

Carlotta Raviola is currently a co-author of 1 chapter in a multi-author book and 7 publications on international peer-reviewed journals with a *h*-index of 4 (source: Scopus; Author ID:55421430200). She also attended national and international meeting presenting 5 oral communications and 5 posters as the presenting author (see below).

Publications

(the symbol "*" indicates a contribution as the corresponding author)

1. Raviola, C.;* Chiesa, F.; Protti, S.; Albini, A.; Fagnoni, M. "On the route to the photogeneration of heteroaryl cations. The case of halothiophenes" *J. Org. Chem.* **2016**, *81*, 6336-6342.
2. Raviola, C.; Protti, S.; Ravelli, D.; Fagnoni, M. "(Hetero)aromatics from dienynes, enediynes and enyne-allenes" *Chem. Soc. Rev.* **2016**, *45*, 4364-4390.
3. Raviola, C.; Ravelli, D.; Protti, S.; Albini, A.; Fagnoni M. "Conditions and edges for the photochemical generation of short lived aryl cations. A computational approach" *Synlett* **2015**, *26*, 471-478.
4. Raviola, C.; Ravelli, D.; Protti, S.; Fagnoni, M. "Methoxy-substituted α ,*n*-didehydrotoluenes. Photochemical generation and polar vs diradical reactivity" *J. Am. Chem. Soc.* **2014**, *136*, 13874-13881.
5. Raviola, C.; Canevari, V.; Protti, S.; Albini, A.; Fagnoni, M. "Metal-free arylations via photochemical activation of the Ar-OSO₂R bond in aryl nonaflates" *Green. Chem.* **2013**, *15*, 2704-2708.
6. Qrareya, H.; Raviola, C.; Protti, S.; Fagnoni, M.; Albini, A. "Transition-metal-free arylations via photogenerated triplet 4-alkyl- and 4-trimethylsilylphenyl cations" *J. Org. Chem.* **2013**, *78*, 6016-6024.
7. Raviola, C.; Protti, S.; Ravelli, D.; Mella, M.; Albini, A.; Fagnoni, M. "Acetalization allows the photoheterolysis of the Ar-Cl bond in chlorobenzaldehydes and chloroacetophenones" *J. Org. Chem.* **2012**, *77*, 9094-9101.

Chapter in multi-author book

Raviola, C.; Protti, S. "Photocatalytic materials and technologies for environmental remediation and CO₂ reduction. Recent advances" in "Visible-Light-Active Photocatalysis: Nanostructured Catalyst Design, Mechanisms, and Applications", Wiley-VCH Verlag GmbH & Co. KGaA, Germany, *in preparation*.

Oral communications presented by Carlotta Raviola

- **Joint Congress of the French and Italian Photochemists and Photobiologists-** Bari (Italy), 19-22 september 2016.
"PHOTOCHEMISTRY OF 2-HALOTHIOPHENES: A JOURNEY FROM HETEROARYL RADICAL TO HETEROARYL CATION" by C. Raviola, S. Protti, M. Fagnoni, A. Albini.
- **XLI Summer School "A. Corbella" – ISOS 2016**-Gargnano (Italy), 12-17 june 2016.
"HAMMETT-BROWN CORRELATION: A COMPUTATIONAL TOOL FOR PREDICTING THE GENERATION OF TRIPLET PHENYL CATION" by C. Raviola, S. Protti, D. Ravelli, M. Fagnoni, A. Albini.
- **XXXVI Convegno della Divisione di Chimica Organica della Società Chimica Italiana** – Bologna (Italy), 13-17 september 2015.
"TRIPLET PHENYL CATIONS AS AN INNOVATIVE SOURCE OF SUBSTITUTED α,n -DIDEHYDROTOLUENES. A COMBINED COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION" by C. Raviola, D. Ravelli, S. Protti, M. Fagnoni, A. Albini.
- **Italian Photochemistry Meeting 2014** –Besate (Italy), 27-29 november 2014.
"TRANSITION METAL-FREE PHOTOACTIVATION OF Ar-OS (ArO-S) BOND IN ARYL NONAFLATES" by C. Raviola, S. Protti, M. Fagnoni, A. Albini.
- **Sigma-Aldrich Young Chemists Symposium- 13° SAYCS** – Riccione (Italy), 28-30 october 2013.
"TRANSITION METAL-FREE PHOTOACTIVATION OF Ar-OS (ArO-S) BOND IN ARYL NONAFLATES" by C. Raviola, S. Protti, M. Fagnoni, A. Albini.

Citation of Carlotta Raviola in other Oral communications

- **2nd China-Italy Symposium on Organic Chemistry** – Padova (Italy), 21-23 april 2015.
"FROM AROMATICS TO α,n -DIDEHYDROTOLUENES. A ONE-PHOTON JOURNEY" by C. Raviola, S. Crespi, D. Ravelli, S. Protti, M. Fagnoni.
- **6thEuCheMS Organic Division Young Investigators Workshop**–Larnaca (Cyprus), 28-30 august 2014.
"SHORT LIVED ARYL CATIONS. PHOTOCHEMICAL GENERATION AND APPLICATION IN METAL-FREE ArS_N1 REACTIONS" by S. Protti, D. Ravelli, C. Raviola, H. Qrareya, S. Crespi, M. Fagnoni, A. Albini.
- **Hiroshima International Symposium on Future Science (Hi-SFs) 2014-** Hiroshima (Japan), 3-5 march 2014.

“PHOTOCHEMICALLY GENERATED PHENYL CATIONS AS TUNABLE AND VERSATILE INTERMEDIATES” by S. Protti, D. Ravelli, C. Raviola, H. Qrareya, M. Fagnoni, A. Albini.

- **Italian Photochemistry Meeting 2013**- Rifreddo (Italy), 28 november-1 dicembre 2013.
“A PHOTOCHEMICAL ROUTE TO α,n -DIDEHYDROTOLUENES (α,n -DHTs) VIA PHOTOGENERATED PHENYL CATIONS” by D. Ravelli, S. Protti, C. Raviola, S. Crespi, M. Fagnoni, A. Albini.

Posters presented by Carlotta Raviola

- **4th International Workshop on pericyclic reactions and synthesis of hetero-/carbocyclic systems** – Milano (Italy), 28-30 June 2017.
“SUNLIGHT INDUCED MALLORY PHOTOCYCLIZATION: AN ALTERNATIVE ROUTE TO SUBSTITUTED [n]PHENACENES” by C. Raviola, S. Garbarino, L. Capaldo, M. Fagnoni.
- **XXV IUPAC Symposium on Photochemistry** - Bordeaux (France), 13-18 July 2014.
“FROM (TRIMETHYLSILYL)METHYL-CHLOROANISOLE TO α,n -DIDEHYDROTOLUENES. A COMBINED EXPERIMENTAL AND COMPUTATIONAL APPROACH.” by C. Raviola, D. Ravelli, S. Protti, M. Fagnoni, A. Albini.
- **Italian Photochemistry Meeting 2012** – Bologna (Italy), 11-12 October 2012.
“ACETALIZATION AS A TOOL TO PROMOTE Ar-CI BOND PHOTOHETEROLYTIC CLEAVAGE IN CHLOROBENZALDEHYDES AND CHLOROACETOPHENONES” by C. Raviola, S. Protti, D. Ravelli, M. Mella, A. Albini, M. Fagnoni.
- **XXXIV Convegno Nazionale della Divisione di Chimica Organica della Società Chimica Italiana** – Pavia (Italy), 10-14 September 2012.
“(TRIMETHYLSILYL)METHYL-CHLOROANISOLE AS NEW PRECURSORS FOR THE PHOTOCHEMICAL GENERATION OF α,n -DIDEHYDROTOLUENES” by C. Raviola, S. Protti, D. Ravelli, M. Fagnoni, A. Albini.
- **New Concepts in Catalysis**– Pavia (Italy), 24-29 June 2012.
“ACETALIZATION AS A TOOL TO PROMOTE Ar-CI BOND PHOTOHETEROLYTIC CLEAVAGE IN CHLOROBENZALDEHYDES AND ACETOPHENONES” by C. Raviola, S. Protti, D. Ravelli, M. Mella, A. Albini, M. Fagnoni.

Citations of Carlotta Raviola in other posters

- **5° Workshop Nazionale GRUPPO INTERDIVISIONALE DI GREEN CHEMISTRY CHIMICA SOSTENIBILE** – Roma (Italy), 16 June 2017.
“Ariazo mesilati, reagenti fotoattivabili in processi di arilazione metal-free” by S. Protti, C. Raviola, S. Crespi, M. Fagnoni.
- **Italian Photochemistry Meeting 2015**-Bologna (Italy), 17-19 December 2015.

“FROM (TRIMETHYLSILYL)METHYL-CHLOROANISOLES TO α ,n-DIDEHYDROTOLUENES. A COMBINED EXPERIMENTAL AND COMPUTATIONAL APPROACH” by C. Raviola, D. Ravelli, S. Protti, M. Fagnoni, A. Albini.

- **Italian Photochemistry Meeting 2013**- Rifreddo (Italy), 28 november-1 december 2013.
“CLOSE TO THE EDGE. PHOTOCHEMICAL GENERATION OF TRIPLET PHENYL CATIONS FROM CHLOROALKYLBENZENES AND WEAKLY ELECTRON-POOR ARYL CHLORIDES” by C. Raviola, H. Qrareya, D. Ravelli, S. Protti, M. Fagnoni, A. Albini.
- **XXXV Convegno della Divisione di Chimica Organica della Società Chimica Italiana** – Sassari (Italy), 9-13 september 2013.
“A PHOTOCHEMICAL ROUTE TO α ,n-DIDEHYDROTOLUENES (α ,n-DHTs) VIA PHOTOGENERATED PHENYL CATIONS” by D. Ravelli, S. Protti, C. Raviola, S. Crespi, M. Fagnoni, A. Albini.
- **2013 Gordon Research Conference on Photochemistry** –Easton (MA-USA), 14-19 july 2013.
“DIDEHYDROTOLUENES (DHTs) FROM PHOTOGENERATED PHENYL CATIONS. AN ALTERNATIVE TO ENYNE-ALLENE CYCLOAROMATIZATION” by S. Protti, D. Ravelli, C. Raviola, M. Fagnoni, A. Albini.
- **XXIV IUPAC Symposium on Photochemistry**- Coimbra (Portugal), 15-20 july 2012.
“CLOSE TO THE EDGE. PHOTOCHEMICAL GENERATION OF TRIPLET ARYL CATIONS FROM CHLOROALKYLBENZENES AND WEAKLY ELECTRON-POOR ARYL CHLORIDES” by C. Raviola, H. Qrareya, A. Albini, M. Fagnoni, D. Ravelli, S. Protti.

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