

ALLEGATO B

UNIVERSITÀ DEGLI STUDI DI MILANO

selezione pubblica per n. 1 posto/i di Ricercatore a tempo determinato ai sensi dell'art.24, comma 3, lettera b) della Legge 240/2010 per il settore concorsuale 03/C1, settore scientifico-disciplinare CHIM/06 presso il Dipartimento di Chimica, (avviso bando pubblicato sulla G.U. n. 59 del 26/07/2022) Codice concorso 5051

Luca Capaldo CURRICULUM VITAE

INFORMAZIONI PERSONALI (NON INSERIRE INDIRIZZO PRIVATO E TELEFONO FISSO O CELLULARE)

COGNOME	CAPALDO
NOME	LUCA
DATA DI NASCITA	27-08-1991

TITOLI

TITOLO DI STUDIO

(indicare la Laurea conseguita inserendo titolo, Ateneo, data di conseguimento, ecc.)

Laurea Magistrale

Dipartimento di Chimica, Università degli Studi di Pavia, Italia
Data di conseguimento: 22/07/2015 (110/110 *Magna cum Laude*)
Supervisori: Prof. Luisa de Cola and Prof. Maurizio Fagnoni
Titolo della tesi: *Organic Chemistry for Bioimaging, LEDs and Superconductors*

Laurea Triennale

Dipartimento di Chimica, Università degli Studi di Pavia, Italia
Data di conseguimento: 25/07/2013 (110/110 *Magna cum Laude*)
Supervisore: Prof. Angelo Albini
Titolo della tesi: *HAT & SET: Two Competing Mechanisms for Photocatalyzed Reactions*

TITOLO DI DOTTORE DI RICERCA O EQUIVALENTI, OVVERO, PER I SETTORI INTERESSATI, DEL DIPLOMA DI SPECIALIZZAZIONE MEDICA O EQUIVALENTE, CONSEGUITO IN ITALIA O ALL'ESTERO

(inserire titolo, ente, data di conseguimento, ecc.)

Dottorato di ricerca in Scienze Chimiche e Farmaceutiche (XXXI ciclo)

Dipartimento di Chimica, Università degli Studi di Pavia, Italia
Data di conseguimento: 22/02/2019 (giudizio finale: *eccellente*)
Supervisore: Prof. Maurizio Fagnoni
Titolo della tesi: *Novel Photocatalytic Approaches for Ecosustainable Synthesis*

CONTRATTI DI RICERCA, ASSEGNI DI RICERCA O EQUIVALENTI

(per ciascun contratto stipulato, inserire università/ente, data di inizio e fine, ecc.)

01/04/2021 - oggi

MSCA Individual Fellowship

Progetto: "Flow Photoelectrocatalysis via Hydrogen-Atom Transfer: net-oxidative C-H to C-C bond conversion" (HAT-TRICK, Project no. 101023615) finanziato da European Union's Horizon 2020

research and innovation programme. Supervisore: Prof. Timothy Noël, Flow Chemistry Group, Van 't Hoff Institute for Molecular Sciences (HIMS), Università di Amsterdam, Paesi Bassi.

01/01/2021 - 31/03/2021

Borsa post-dottorato

Progetto: *"Photochemical C–H bond amination"* funded by Lilly Research Award Program. Supervisore: Prof. Timothy Noël, Flow Chemistry Group, Van 't Hoff Institute for Molecular Sciences (HIMS), Università di Amsterdam, Paesi Bassi.

01/10/2020 – 31/12/2020

Borsa post-dottorato

Photocatalytic processes applied to radical substitution reactions. Supervisore: Prof. Davide Ravelli, PhotoGreen Lab, Dipartimento di Chimica, Università degli Studi di Pavia, Italia

01/10/2019 – 30/09/2020

Assegno di ricerca

Synthetic processes mediated by high-energy intermediates.

Supervisore: Prof. Davide Ravelli, PhotoGreen Lab, Dipartimento di Chimica, Università degli Studi di Pavia, Italia

01/10/2018 – 30/09/2019

Assegno di ricerca

Metallo-oxo complexes as photocatalysts in reactions via Hydrogen Atom Transfer Supervisore: Prof. Davide Ravelli, PhotoGreen Lab, Dipartimento di Chimica, Università degli Studi di Pavia, Italia

ATTIVITÀ DIDATTICA A LIVELLO UNIVERSITARIO IN ITALIA O ALL'ESTERO

(inserire periodo [gg/mm/aa inizio e fine], anno accademico, ateneo, corso laurea, numero ore, ecc.)

01/03/2016 - 30/06/2020

Supervisione di studenti in corsi teorici e di laboratorio (150 ore come tutor di Chimica Inorganica, Laboratorio di Chimica Organica I e II, Chimica organica per la Laurea Triennale in Chimica e Laurea Triennale in Biotecnologia all'Università di Pavia.

REALIZZAZIONE DI ATTIVITÀ PROGETTUALE

(indicare, data, progetto, ecc.)

01/04/2021 - oggi

MSCA Individual Fellowship (HAT-TRICK, Progetto no. 101023615) finanziata da European Union's Horizon 2020 research and innovation programme.

20/04/2020 - 12/02/2021

Collaboratore nel Progetto di High-Performance Computing (HPC) (code IsC78_PBsquare) concesso dal Consorzio Italiano CINECA-SCAI.

08/01/2018– 08/06/2018

"Borsa di studio per periodi di ricerca all'estero" internship grant dall'Università di Pavia

01/10/2014– 28/02/2015

Erasmus Traineeship fellowship

ORGANIZZAZIONE, DIREZIONE E COORDINAMENTO DI GRUPPI DI RICERCA NAZIONALI E INTERNAZIONALI,

O PARTECIPAZIONE AGLI STESSI

(per ciascuna voce inserire anno, ruolo, gruppo di ricerca, ecc.)

dal 20-07-2018 al 20-07-2020

Sono primo autore nella pubblicazione "Antimony-oxo porphyrins as photocatalysts for redox-neutral C-H to C-C bond conversion" (ACS Catal. 2020, 10, 16, 9057-9064). Si tratta di un progetto portato a termine con il Prof. Günther Knör (Professor of Inorganic Chemistry, Johannes Kepler University Linz, Austria) in cui abbiamo dimostrato computazionalmente e sperimentalmente che le antimonio-osso porfirine costituiscono una nuova classe di fotocatalizzatori per il trasferimento di atomo di idrogeno con luce visibile.

dal 01-09-2019 al 01-01-2020

Sono autore di riferimento della pubblicazione "Catalyst-free [2 + 2] photocycloadditions between benzils and olefins under visible light" (Photochem. Photobiol. Sci. 2021, DOI: 10.1007/s43630-021-00129-4). Per questa pubblicazione ho coordinato i lavori di ricerca tra diverse istituzioni, tra cui l'Università di Genova e l'Università di Pavia, per studiare le cicloaddizioni fotoindotte con luce visibile tra alpha-dichetoni e olefine.

dal 01-04-2020 al 03-03-2021

Sono autore di riferimento della pubblicazione "Decatungstate as Direct Hydrogen Atom Transfer Photocatalyst for SOMOphilic Alkynylation" (Org. Lett. 2021, 23, 6, 2243-2247). Per questa pubblicazione ho collaborato con l'Università di Pavia per studiare l'alchinilazione fotocatalizzata di molecole organica via trasferimento di atomo di idrogeno.

dal 15-05-2020 al 15-02-2021

Sono stato collaboratore di ricerca nel progetto "PB_squared" (budget: 2000 ore, Principal Investigator: Davide Ravelli) presso il CINECA, volto allo studio computazionale della reazione di Paternó-Büchi.

dal 01-01-2021 al 06-08-2021

Sono primo autore della pubblicazione "Direct Photocatalyzed Hydrogen Atom Transfer (HAT) for Aliphatic C-H Bonds Elaboration" (Chem. Rev. 2021, DOI: 10.1021/acs.chemrev.1c00263), una review scritta in collaborazione con i Proff. Davide Ravelli e Maurizio Fagnoni dell'Università di Pavia sul trasferimento di atomo di idrogeno fotocatalizzato per la sintesi organica.

dal 10-08-2021 al 10-05-2022

Sono collaboratore di ricerca nel progetto "Moebius" (budget: 64000 ore, Principal Investigator: Davide Ravelli) presso il CINECA, volto allo studio computazionale di reazioni fotochimiche e fotocatalizzate.

dal 01-03-2022 a oggi

Sono primo autore nella pubblicazione "Photoinduced Halogen-Atom Transfer (XAT) by N-heterocyclic carbene boryl radicals for C(sp³)-C(sp³) bond formation" (ChemRxiv 2022, DOI: 10.26434/chemrxiv-2022-8j1df). Si tratta di un progetto portato a termine con i Proff. Bas de Bruin (Professor of Bioinspired sustainable catalysis, Van 't Hoff Institute for Molecular Sciences, Amsterdam) e Davide Ravelli (Photogreen Lab, Dipartimento di Chimica, Università di Pavia) in cui abbiamo dimostrato computazionalmente e sperimentalmente che gli N-heterocyclic carbenes possono essere impiegati per il trasferimento di alogeno per formare legami C-C.

ATTIVITÀ DI RELATORE A CONGRESSI E CONVEGNI NAZIONALI E INTERNAZIONALI

(inserire titolo congresso/convegno, data, ecc.)

Presentazioni orali su invito:

03/12/2021

"Synthetic Photoelectrochemistry: the dawn of a new alliance in organic synthesis", online presentation for the University of L'Aquila. I was invited by Prof. Armando Carlone to give this talk to MSc and PhD student.

23-24/09/2021

“Novel Photocatalytic Approaches for Ecosustainable Synthesis” at **Giornate Italiane di Fotochimica del Gruppo Italiano di Fotochimica**, online symposium. *I was invited to give this talk as a recipient of Premio Ugo Mazzucato for the best Italian PhD Thesis in Photochemistry in 2019/20.*

07/10/2020

“Uranyl Cation as a Visible Light Photocatalyst for C-C Bond Formation via HAT” at **SCI Giovani Award Ceremony**, online symposium. *I was invited to give this talk when I was awarded the Primo Levi Award for my work on the photochemistry of the uranyl dication.*

08-12/09/2019

“The Triangle of Photocatalysis: Different Approaches for Ecosustainable Synthesis” at “**XXXIX Convegno Nazionale della Divisione di Chimica Organica della Società Chimica Italiana**”, Torino (IT). *I was invited to give this talk when I was awarded the Best Ph.D. thesis Award in Organic Chemistry for its Methodological Aspects. This is the most relevant national meeting of the Organic Chemistry Division of the Italian Chemical Society.*

05/07/2019

“Novel Photocatalytic Approaches for Ecosustainable Synthesis” at “**VII Workshop Nazionale Gruppo Interdivisionale Green Chemistry - Chimica Sostenibile, Società Chimica Italiana**”, Padova (IT). *I was invited to give this talk because I was one of the finalists for the Green Chemistry Award 2019.*

Presentazioni orali:

26-30/06/2022

“Continuous-flow as an enabling technology for photocatalyzed Hydrogen Atom Transfer” at “**3rd International Conference on Hydrogen Atom Transfer**”, Monteporzio Catone (IT).

07-08/12/2021

“Regioselective and scalable C-H functionalization via flow photocatalysis” at “**NWO Chains 2021**”, online conference.

22-24/11/2021

“Decatungstate-mediated C(sp³)-H heteroarylation via radical-polar crossover in batch and flow” at “**Merck Young Chemists' Symposium 2021**”, Rimini (IT).

03-06/11/2020

“Antimony-Oxo Porphyrins as Photocatalysts for Redox-Neutral C-H to C-C Bond Conversion” at “**ViSYOCheM2020**”, online symposium.

09-13/06/2019

“Uranyl Cation as Visible-Light Photocatalyst for C-C Bond Formation via Hydrogen Atom Transfer” at “**ISOS2019 - "A. Corbella" International Summer School on Organic Synthesis**”, Gargnano (IT). *I was awarded a travel grant to attend this School and won the Best Oral Presentation by both the Audience and the Scientific Committee. This is one of the most prestigious International Summer Schools on Organic Chemistry held in Italy. I was also the leader of one group (5 persons) in the problem session (>12 groups) that was awarded the third place.*

19-21/11/2018

“Uranyl Cation as Visible-Light Photocatalyst for C-C Bond Formation via Hydrogen Atom Transfer” at “**Merck & Elsevier Young Chemists Symposium 2018**”, Rimini (IT).

14-16/12/2017

“Antimony-oxo Porphyrins as Visible-Light Photocatalysts for Hydrogen Atom Transfer (HAT) Reactions in Organic Synthesis” at “**Italian Photochemistry Meeting 2017**”, Perugia (IT).

25-27/10/2016

“Smooth Photocatalyzed Benzoylation of Electrophilic Olefins via Decarboxylation of Arylacetic Acids” at “**Merck Young Chemists Symposium 2016**”, Rimini (IT).

CONSEGUIMENTO DI PREMI E RICONOSCIMENTI NAZIONALI E INTERNAZIONALI PER ATTIVITÀ DI RICERCA (inserire premio, data, ente organizzatore, ecc.)

06/10/2020

Premio “Primo Levi” dalla Società Chimica Italiana. *È il premio più prestigioso per giovani chimici ed è assegnato dal Gruppo Giovani della Società Chimica Italiana in riconoscimento di una pubblicazione eccellente. Viene assegnato una volta all’anno.*

28/02/2020

Premio miglior tesi Ph.D. “conScienze 2019” dalla Conferenza Nazionale dei Presidenti e dei Direttori delle Strutture Universitarie di Scienze e Tecnologie. *È un premio nazionale assegnato per le migliori tesi di dottorato nelle discipline scientifiche da un consorzio di capi e direttori di dipartimenti. Viene assegnato una volta all’anno.*

30/09/2019

Premio miglior tesi Ph.D. “Ugo Mazzucato” in Fotochimica 2019 (XXXI cycle) dal Gruppo Italiano di Fotochimica. *È un premio nazionale assegnato per la miglior tesi di dottorato in fotochimica in Italia. Viene assegnato una volta all’anno.*

04/06/2019

Miglior tesi in Chimica Organica nei suoi Aspetti Metodologici dalla Divisione di Chimica Organica della Società Chimica Italiana. *È il premio più prestigioso per studenti di dottorato ed è assegnato dalla Società Chimica Italiana per la miglior tesi che contribuisce allo sviluppo della chimica organica dal punto di vista metodologico. Viene assegnato una volta all’anno.*

13/06/2019

Miglior presentazione orale assegnato dal pubblico e dal Comitato Organizzatore della scuola “ISOS2019 - “A. Corbella” International Summer School on Organic Synthesis”.

16/12/2017

Miglior presentazione orale assegnato dal Comitato Organizzatore del convegno “Italian Photochemistry Meeting 2017”.

12/09/2017

Reaxys Sci Young Researcher Award (2nd Place) assegnato da Elsevier e dal Gruppo Giovani della Società Chimica Italiana. *È un premio internazionale per gli studenti di dottorato in chimica. I candidati devono scrivere un saggio che spieghi la loro ricerca e come Reaxys sia stato cruciale per essa.*

PRODUZIONE SCIENTIFICA

PUBBLICAZIONI SCIENTIFICHE

(per ciascuna pubblicazione indicare: nomi degli autori, titolo completo, casa editrice, data e luogo di pubblicazione, codice ISBN, ISSN, DOI o altro equivalente)

1) F. F. Özgen, A. Jorea, L. Capaldo, R. Kourist, D. Ravelli, S. Schmidt

“The Synthesis of Chiral γ -Lactones by Merging Decatungstate Photocatalysis with Biocatalysis”
ChemCatChem 2022

DOI: /10.1002/cctc.202200855

2) T. Wan, L. Capaldo, D. Ravelli, W. Vitullo, F. de Zwart, B. de Bruin, T. Noël “Photoinduced Halogen-Atom Transfer (XAT) by N-heterocyclic carbene boryl radicals for C(sp³)-C(sp³) bond formation”

ChemRxiv 2022

DOI: 10.26434/chemrxiv-2022-8j1df

3) S. Bonciolini, T. Noël, L. Capaldo (as corresponding author)

“Synthetic applications of Photocatalyzed Halogen-radical mediated Hydrogen Atom Transfer for C-H bond functionalization”

Eur. J. Org. Chem. 2022

DOI: 10.1002/ejoc.202200417

- 4) L. Capaldo, T. Noël, D. Ravelli
“Photocatalytic generation of Ligated Boryl Radicals (LBRs) from tertiary amine-borane complexes: an emerging tool in organic synthesis”
Chem. Catal. 2022, 2, 957–966
DOI: 10.1016/j.checat.2022.03.005
- 5) L. Capaldo, S. Bonciolini, A. Pulcinella, M. Nuno, T. Noël
“Modular allylation of C(sp³)-H bonds by combining decatungstate photocatalysis and HWE olefination in flow”
Chem. Sci. 2022, 13, 7325–7331
DOI: 10.1039/D2SC01581A
- 6) T. Wan, Z. Wen, G. Laudadio, L. Capaldo, R. Lammers, J. A. Rincón, P. García-Losada, C. Mateos, M. O. Frederick, R. Broersma, T. Noël
“Accelerated and Scalable C(sp³)-H Amination via Decatungstate Photocatalysis Using a Flow Photoreactor Equipped with High-Intensity LEDs”
ACS Cent. Sci. 2022, 8, 51–56
DOI: 10.1021/acscentsci.1c01109
- 7) R. Tinelli, D. Ravelli, A. Basso, S. C. Tarantino, L. Capaldo (as **corresponding author**)
“Catalyst-free [2+ 2] photocycloadditions between benzils and olefins under visible light”
Photochem. Photobiol. Sci 2021
DOI: 10.1007/s43630-021-00129-4
- 8) L. Capaldo, D. Ravelli, M. Fagnoni
“Direct Photocatalyzed Hydrogen Atom Transfer (HAT) for Aliphatic C-H Bonds Elaboration”
Chem. Rev. 2022, 122, 1875–1924
DOI: 10.1021/acs.chemrev.1c00263
- 9) T. Wan, L. Capaldo, G. Laudadio, A. V. Nyuchev, J. A. Rincón, P. García-Losada, C. Mateos, M. O. Frederick, M. Nuño, T. Noël
“Decatungstate-mediated C(sp³)-H Heteroarylation via Radical-Polar Crossover in Batch and Flow”
Angew. Chem. Int. Ed. 2021, 60, 17893–17897
DOI: 10.1002/ange.202104682
- 10) S. O. Scholz, J. B. Kidd, L. Capaldo, N. E. Flikweert, R. M. Littlefield, T. P. Yoon
“Construction of Complex Cyclobutane Building Blocks by Photosensitized [2 + 2] Cycloaddition of Vinyl Boronate Esters”
Org. Lett. 2021, 23, 3496–3501
DOI: 10.1021/acs.orglett.1c00938
- 11) L. Capaldo and D. Ravelli (as **corresponding author**)
“Decatungstate as Direct Hydrogen Atom Transfer Photocatalyst for SOMOphilic Alkynylation”
Org. Lett. 2021, 23, 2243–2247
DOI: 10.1021/acs.orglett.1c00381
- 12) L. Capaldo, L. L. Quadri, D. Merli, D. Ravelli
“Photoelectrochemical Cross-Dehydrogenative Coupling of Benzothiazoles with Strong Aliphatic C-H Bonds”
Chem. Commun. 2021, 57, 4424–4427
DOI: 10.1039/D1CC01012C
- 13) L. Capaldo, M. Ertl, M. Fagnoni, G. Knör and D. Ravelli
“Antimony-Oxo Porphyrins as Photocatalysts for Redox-Neutral C-H to C-C Bond Conversion”.
ACS Catal. 2020, 10, 9057–9064
DOI: 10.1021/acscatal.0c02250
- 14) L. Capaldo, L. L. Quadri and D. Ravelli
“Photocatalytic hydrogen atom transfer: the philosopher's stone for late-stage functionalization?”

Green Chem. 2020, 22, 3376-3396
DOI: 10.1039/D0GC01035A

15) L. Capaldo and D. Ravelli (as corresponding author)
“The Dark Side of Photocatalysis: One Thousand Ways to Close the Cycle”
Eur. J. Org. Chem. 2020, 2783-2806
DOI: 10.1002/ejoc.202000144

16) T. Basile, L. Capaldo, D. Ravelli and Paolo Quadrelli
“Photocatalyzed Generation of Nitrosocarbonyl Intermediates Under Solar Light Irradiation”
Eur. J. Org. Chem. 2020, 2020, 1443-1447
DOI: 10.1002/ejoc.201900596

17) L. Capaldo, L. L. Quadri, D. Ravelli
“Merging Photocatalysis with Electrochemistry: The Dawn of a new Alliance in Organic Synthesis”
Angew. Chem. Int. Ed., 2019, 58, 17508-17510
DOI: 10.1002/anie.201910348

18) C. Raviola, L. Capaldo and D. Ravelli
“A tan for molecules: photocatalyzed synthesis with direct sunlight”
Rend. Lincei-Sci. Fis., 2019, 30, 485-495
DOI: 10.1007/s12210-019-00826-4

19) A. Aliprandi, L. Capaldo, C. Bobica, S. Silvestrini and L. De Cola
“Effects of the Molecular Design on the Supramolecular Organization of Luminescent Pt(II) Complexes”
Isr. J. Chem. 2019, 59, 892-897
DOI: 10.1002/ijch.201900047

20) L. Capaldo, D. Merli, M. Fagnoni and D. Ravelli
“Visible Light Uranyl Photocatalysis: Direct C-H to C-C Bond Conversion”
ACS Catal., 2019, 9, 3054-3058
DOI: 10.1021/acscatal.9b00287

21) L. Capaldo, D. Ravelli
“Alkoxy Radicals Generation: Facile Photocatalytic Reduction of N-Alkoxyazinium or Azolium Salts”
Chem. Commun. 2019, 55, 3029-3032
DOI: 10.1039/C9CC00035F

22) L. Capaldo, R. Riccardi, D. Ravelli and M. Fagnoni
“Acyl Radicals from Acylsilanes: Photoredox-Catalyzed Synthesis of Unsymmetrical Ketones”
ACS Catal. 2018, 8, 304-309
DOI: 10.1021/acscatal.7b03719

23) L. Capaldo, S. Garbarino, S. Protti, M. Fagnoni, and D. Ravelli
“Processi fotocatalitici via anione decatungstato per la sintesi organica”
La Chimica e l'Industria online, ANNO I, n°2, Marzo/Aprile 2017
DOI: 10.17374/CI.2017.99.2.48

24) L. Capaldo, M. Fagnoni and D. Ravelli
“Vinylpyridines as Building Blocks for the Photocatalyzed Synthesis of Alkylpyridines”
Chem. Eur. J. 2017, 23, 6527-6530
DOI: 10.1002/chem.201701346

25) L. Capaldo and D. Ravelli
“Hydrogen Atom Transfer (HAT): A Versatile Strategy for Substrate Activation in Photocatalyzed Organic Synthesis”
Eur. J. Org. Chem. 2017, 2056-2071
DOI: 10.1002/ejoc.201601485

26) L. Capaldo, L. Buzzetti, D. Merli, M. Fagnoni, and D. Ravelli
“Smooth Photocatalyzed Benzoylation of Electrophilic Olefins via Decarboxylation of Arylacetic Acid”

J. Org. Chem. 2016, 81, 7102-7109
DOI: 10.1021/acs.joc.6b00984

Data

04/09/2022

Luogo

Amsterdam

Luca Capaldo

- CV -



• PERSONAL INFORMATION

Name Luca Capaldo
Date of birth 27/08/1991
Nationality Italian

• PROFESSIONAL EXPERIENCE

- 01/04/2021 – present **MSCA Individual Fellowship**
Project: “*Flow Photoelectrocatalysis via Hydrogen-Atom Transfer: net-oxidative C–H to C–C bond conversion*” (HAT-TRICK, Project no. 101023615) funded by European Union’s Horizon 2020 research and innovation programme.
Supervisor: Prof. Timothy Noël
Flow Chemistry Group, Van 't Hoff Institute for Molecular Sciences (HIMS), University of Amsterdam, The Netherlands
- 01/01/2021 – 31/03/2021 **Post-doctoral Fellowship**
Project: “*Photochemical C–H bond amination*” funded by Lilly Research Award Program
Supervisor: Prof. Timothy Noël
Flow Chemistry Group, Van 't Hoff Institute for Molecular Sciences (HIMS), University of Amsterdam, The Netherlands
- 01/10/2018 – 31/12/2020 **Post-doctoral Fellowship**
01/10/2020 – 31/12/2020 *Photocatalytic processes applied to radical substitution reactions*
Supervisor: Prof. Davide Ravelli
PhotoGreen Lab, Department of Chemistry, University of Pavia, Italy
- 01/10/2019 – 30/09/2020 *Synthetic processes mediated by high-energy intermediates*
Supervisor: Prof. Davide Ravelli
PhotoGreen Lab, Department of Chemistry, University of Pavia, Italy
- 01/10/2018 – 30/09/2019 *Metallo-oxo complexes as photocatalysts in reactions via Hydrogen Atom Transfer*
Supervisor: Prof. Davide Ravelli
PhotoGreen Lab, Department of Chemistry, University of Pavia, Italy
- **EDUCATION**
- 01/10/2015– 30/09/2018 **Ph.D. in Chemical and Pharmaceutical Sciences**
Department of Chemistry, University of Pavia, Italy
Defense: 22/02/2019 (final grade: *eccellente*. Comparable to Summa cum Laude)
Advisor: Prof. Maurizio Fagnoni.
Thesis title: *Novel Photocatalytic Approaches for Ecosustainable Synthesis*
Abstract published on *EPA Newsletters* – December 2018, pp. 42-47
- 14/10/2013– 22/07/2015 **Master’s Degree in Chemistry**
Department of Chemistry, University of Pavia, Italy
Degree obtained on 22/07/2015 (110/110 *Magna cum Laude*)
Advisors: Prof. Luisa de Cola and Prof. Maurizio Fagnoni
Thesis title: *Organic Chemistry for Bioimaging, LEDs and Superconductors*
- 13/09/2010– 25/07/2013 **Bachelor’s Degree in Chemistry**
Department of Chemistry, University of Pavia, Italy
Degree obtained on 25/07/2013 (110/110 *Magna cum Laude*)
Advisor: Prof. Angelo Albini
Thesis title: *HAT & SET: Two Competing Mechanisms for Photocatalyzed Reactions*

• INTERNSHIPS

- 08/01/2018 – 08/06/2018 **Visiting Ph.D. Student**
Project: “[2+2] photocycloadditions mediated by Ir-complexes”

Department of Chemistry, University of Wisconsin-Madison, United States

Advisor: Prof. Tehshik P. Yoon

01/10/2014 – 28/02/2015 **Visiting M.Sc. Student (Erasmus Traineeship)**

Project: “Pt and Zn complexes for applications in bioimaging and OLEDs”

Institut de Science et d'Ingénierie Supramoléculaires, Strasbourg, France

Advisor: Prof. Luisa De Cola

• AWARDS

- 06/10/2020 **“Primo Levi” award** by the Italian Chemical Society. *This is the most prestigious prize for young chemists and is awarded by the Young Group of the Italian Chemical Society in recognition of an outstanding publication. It is awarded once per year.*
- 28/02/2020 **“conScienze 2019” Ph.D. thesis award** by the Conferenza Nazionale dei Presidenti e dei Direttori delle Strutture Universitarie di Scienze e Tecnologie. *This is a national award given to outstanding Ph.D. theses in scientific disciplines by a consortium of chiefs and head of departments. It is awarded once per year.*
- 30/09/2019 **“Ugo Mazzucato” Best PhD thesis award** in Photochemistry 2019 (XXXI cycle) by the Italian Group of Photochemistry of the Italian Chemical Society. *This is a national award given to the best Ph.D. thesis in photochemistry in Italy. It is awarded once per year.*
- 04/06/2019 **Best Ph.D. Thesis Award** in “Organic Chemistry in its Methodological Aspects” by the Italian Chemical Society – Division of Organic Chemistry. *This is the most prestigious prize for a Ph.D. candidate and is awarded by the Italian Chemistry Society for the best thesis contributing to the development of organic chemistry from a methodological standpoint. It is awarded once per year.*
- 13/06/2019 **Best Oral Presentation** Awards assigned by the Audience and the Organizing Committee at “ISOS2019 - “A. Corbella” International Summer School on Organic Synthesis”. *I was awarded the Best Oral Presentation Award both by the Organizing Committee and by the Audience.*
- 16/12/2017 **Best Oral Presentation** Award assigned by the Scientific Committee at “Italian Photochemistry Meeting 2017”. *I was awarded the Best Oral Presentation Award by the Organizing Committee.*
- 12/09/2017 **Reaxys Sci Young Researcher Award** (2nd Place) by Elsevier and the Italian Chemical Society (Young group). *This is an international award for Ph.D. students. Candidates have to submit an essay explaining their research and how Reaxys was pivotal for it.*

• NATIONAL SCIENTIFIC QUALIFICATION (ASN)

I received the ASN (Abilitazione Scientifica Nazionale, as associate professor SC 03/C1 – Organic Chemistry) on 02/06/2022.

• GRANTS

- 01/04/2021 – present MSCA Individual Fellowship (HAT-TRICK, Project no. 101023615) funded by European Union’s Horizon 2020 research and innovation programme.
- 20/04/2020 – 12/02/2021 Collaborator in the High-Performance Computing (HPC) project (code IsC78_PBSquare) granted by the Italian Consortium CINECA-SCAI.
- 08/01/2018– 08/06/2018 “Borsa di studio per periodi di ricerca all’estero” internship grant from the University of Pavia
- 01/10/2014– 28/02/2015 Erasmus Traineeship fellowship

• SUPERVISION OF STUDENTS

- 10/2018 – present Co-supervision of **B.Sc. students** (@UNIPV: Nicoletta F.; @UvA: Robin M., Perry v.d.H., Volkert D.), **M.Sc. students** (@UNIPV: Lorenzo Q., Roberto T.; @UvA: Walter V.) and PhD students (@UvA: Ting W., Lukas C.)
- 07/2016 & 07/2017 Teaching activity for **high-school students** within the frame of PLS (Piano Lauree Scientifiche), a project meant to make them approach to chemistry. Students were awarded by the PLS committee for their outstanding activity both times.
- 03/2016 – 06/2020 Supervision of **students in lab and theoretical courses** (more than 150 hours as tutor or giving seminars for the Inorganic Chemistry, Organic Chemistry Laboratory I and II and

- **EDITORIAL EXPERIENCE**

12 verified reviews: publons.com/researcher/3095614

Member of the Reviewer Board of Chemistry, MDPI.

Assistant Editor for the Journal of Flow Chemistry (Springer and Akademia Kiado).

- **ORGANIZATION OF CONFERENCES**

24-25/09/2021 **ETOC** – Enabling Technologies for Organic Synthesis. *The first edition of the ETOC Symposium took place on February 24-25, 2022 in a fully digital setting and counted 486 attendees. It brought scientists from all over the world together to share their knowledge in the field of organic chemistry and technology utilization. The program was developed around different crucial topics, such as photoredox catalysis, electrochemistry, machine learning and biocatalysis, among others.*

- **CONTRIBUTIONS TO CONFERENCES**

As invited oral presentations:

03/12/2021 “Synthetic Photoelectrochemistry: the dawn of the a new alliance in organic synthesis”, online presentation for the University of L'Aquila. *I was invited by Prof. Armando Carlone to give this talk to MSc and PhD student.*

23-24/09/2021 “Novel Photocatalytic Approaches for Ecosustainable Synthesis” at **Giornate Italiane di Fotochimica del Gruppo Italiano di Fotochimica**, online symposium. *I was invited to give this talk as a recipient of Premio Ugo Mazzucato for the best Italian PhD Thesis in Photochemistry in 2019/20.*

07/10/2020 “Uranyl Cation as a Visible Light Photocatalyst for C-C Bond Formation via HAT” at **SCI Giovani Award Ceremony**, online symposium. *I was invited to give this talk when I was awarded the Primo Levi Award for my work on the photochemistry of the uranyl dication.*

08-12/09/2019 “The Triangle of Photocatalysis: Different Approaches for Ecosustainable Synthesis” at “**XXXIX Convegno Nazionale della Divisione di Chimica Organica della Società Chimica Italiana**”, Torino (IT). *I was invited to give this talk when I was awarded the Best Ph.D. thesis Award in Organic Chemistry for its Methodological Aspects. This is the most relevant national meeting of the Organic Chemistry Division of the Italian Chemical Society.*

05/07/2019 “Novel Photocatalytic Approaches for Ecosustainable Synthesis” at “**VII Workshop Nazionale Gruppo Interdivisionale Green Chemistry – Chimica Sostenibile, Società Chimica Italiana**”, Padova (IT). *I was invited to give this talk because I was one of the finalists for the Green Chemistry Award 2019.*

As oral presentations:

26-30/06/2022 “Continuous-flow as an enabling technology for photocatalyzed Hydrogen Atom Transfer” at “**3rd International Conference on Hydrogen Atom Transfer**”, Monteporzio Catone (IT).

07-08/12/2021 “Regioselective and scalable C–H functionalization via flow photocatalysis” at “**NWO Chains 2021**”, online conference.

22-24/11/2021 “Decatungstate-mediated C(sp³)–H heteroarylation via radical-polar crossover in batch and flow” at “**Merck Young Chemists' Symposium 2021**”, Rimini (IT).

03-06/11/2020 “Antimony–Oxo Porphyrins as Photocatalysts for Redox-Neutral C–H to C–C Bond Conversion” at “**ViSYOChem2020**”, online symposium.

09-13/06/2019 “Uranyl Cation as Visible-Light Photocatalyst for C-C Bond Formation via Hydrogen Atom Transfer” at “**ISOS2019 - "A. Corbella" International Summer School on Organic Synthesis**”, Gargnano (IT). *I was awarded a travel grant to attend this School and won the Best Oral Presentation by both the Audience and the Scientific Committee. This is one of the most prestigious International Summer Schools on Organic Chemistry held in Italy. I was also the leader of one group (5 persons) in the problem session (>12 groups) that was awarded the third place.*

- 19-21/11/2018 “Uranyl Cation as Visible-Light Photocatalyst for C-C Bond Formation via Hydrogen Atom Transfer” at “**Merck & Elsevier Young Chemists Symposium 2018**”, Rimini (IT).
- 14-16/12/2017 “Antimony-oxo Porphyrins as Visible-Light Photocatalysts for Hydrogen Atom Transfer (HAT) Reactions in Organic Synthesis” at “**Italian Photochemistry Meeting 2017**”, Perugia (IT).
- 25-27/10/2016 “Smooth Photocatalyzed Benzylation of Electrophilic Olefins via Decarboxylation of Arylacetic Acids” at “**Merck Young Chemists Symposium 2016**”, Rimini (IT).

As poster presentations:

- 24-26/06/2019 “Uranyl Cation as Visible-Light Photocatalyst for C-C Bond Formation via Hydrogen Atom Transfer” at “**UK-IT Joint Meeting on Photochemistry 2019**”, Lipari (IT).
- 02-06/07/2017 “Vinylpyridines Alkylation Triggered by Decatungstate Photocatalyzed Hydrogen Atom Transfer (HAT)” at “**2nd International Conference on Hydrogen Atom Transfer**”, Monteporzio Catone (IT).

• **SCHOOLS & WORKSHOPS**

- 24-25/11/2019 School – “SCI*C - Scuola in Comunicazione della Chimica”, Rimini – *Travel Grant*
- 30/09/2019 Workshop – “Le Giornate di Chimica Organica a Pavia”, Pavia
- 05/07/2019 Workshop – “VII Workshop Nazionale Gruppo Interdivisionale Green Chemistry”, Padova
- 09-14/06/2019 School – ““A. Corbella” International Summer School on Organic Synthesis”, Brescia – *Travel Grant*
- 26/11/2018 Workshop – “Nuovi orientamenti in Chimica Organica”, Milan
- 11/10/2018 Workshop – “Le Giornate di Chimica Organica a Pavia”, Pavia
- 11/10/2017 Workshop – “Le Giornate di Chimica Organica a Pavia”, Pavia
- 02/02/2017 Workshop – “I Giganti della Fotochimica”, Bologna
- 06-10/06/2016 School – “7° Corso Nazionale di Introduzione alla Fotochimica”, Bologna
- 10/05/2016 Workshop – “Tissue repair: from biochemical mechanisms to formulation approaches”, Pavia

• **DISSEMINATION ACTIVITY**

- 01/02/2020 – 11/02/2020 Involved in the *Alchimica – La chimica degli esplosivi* project at Scientific High School “Niccolò Copernico” in Pavia (IT). *Alchimica – La chimica degli esplosivi* is a project meant to explain youngsters the nature, classification and chemistry of explosives. This project was the result of individual initiative. Audience: ~250 persons.
- 24/09/19 Held a presentation at Palazzo del Broletto, Pavia (IT) on the occasion of the International Year of the Periodic Table entitled “La Tavola Periodica: il “trip” di Mendeleev” within the **European Researchers’ Night 2019** event. Audience: ~100 persons.
- 20/02/2019 – 06/03/2019 Involved in the *Nuova Chimica – Everyday Chemistry* project at Scientific High School “Galileo Galilei” in Voghera (IT). *Nuova Chimica – Everyday Chemistry* is a project meant to introduce youngsters to everyday chemistry. This project was the result of individual initiative. Audience: ~200 persons.
- 18/02/2019 – 28/02/2019 Involved in the *Nuova Chimica – La chimica in cucina* project at Scientific High School “Niccolò Copernico” in Pavia (IT). *Nuova Chimica – La chimica in cucina* is a project meant to introduce youngsters to food chemistry. This project was the result of individual initiative. Audience: ~250 persons.
- 26/09/18 Held a presentation at Palazzo del Broletto, Pavia (IT) entitled “Il gulfatto: come interagiscono gusto e olfatto” within the **European Researchers’ Night 2018** event. Audience: ~60 persons.
- 24/09/2017 – 23/12/2017 Took part to the Universitiamo (www.universitiamo.eu) **crowdfunding** campaign *Light and Chemistry: Partners in the fight against Tumors* proposed by PhotoGreen Lab and promoted by the University of Pavia. Role: Member of the research group and co-organizer of fundraising events (Autunno Pavese: 24/09/17; Notte dei ricercatori: 29/09/17; Scienza in Piazza: 21/10/17; Live by C’esco e i Musicanti di Brahma for PhotoGreen Lab: 29/10/17; Pavia Lirica: 13/12/17; DAGDA Live Club – Concert by MotelNoire: 23/12/17).

- 26/10/17 – 05/11/17 Expo at Museo Luzzati, Genova (IT) presenting experiments designed to explain the importance of light in everyday life to teenagers in the frame of the **Festival della Scienza** event.
- 27/11/17 – 11/12/17 Involved in the *Nuova Chimica* project at Scientific High School “Niccolò Copernico” in Pavia (IT). *Nuova Chimica* is a project meant to introduce youngsters to non-traditional approaches to chemistry, such as photochemistry. This project was the result of individual initiative. Audience: ~200 persons.

• **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

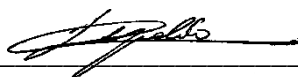
- 2016 – present Member of the “Italian Society of Chemistry” (SCI); membership of the Division of Organic Chemistry
- 2016 – present Member of the “Italian Group of Photochemistry” (GIF)
- 2016 – present Member of the “European Photochemistry Association” (EPA)

In compliance with the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize the recipient of this document to use and process my personal details for the purpose of recruiting and selecting staff and I confirm to be informed of my rights in accordance to art. 7 of the above mentioned decree.

Date

September 3rd, 2022

Signature



LIST OF PUBLICATIONS

ORCID ID: [0000-0001-7114-267X](https://orcid.org/0000-0001-7114-267X) Scopus ID: [57190816188](https://scopus.org/57190816188)

Citations: 980

H index: 14 (Source: Google Scholar)

- 1) F. F. Özgen, A. Jorea, L. Capaldo, R. Kourist, D. Ravelli, S. Schmidt
“The Synthesis of Chiral γ -Lactones by Merging Decatungstate Photocatalysis with Biocatalysis”
ChemCatChem **2022**
DOI: [10.1002/cctc.202200855](https://doi.org/10.1002/cctc.202200855)
- 2) T. Wan, L. Capaldo, D. Ravelli, W. Vitullo, F. de Zwart, B. de Bruin, T. Noël
“Photoinduced Halogen-Atom Transfer (XAT) by N-heterocyclic carbene boryl radicals for C(sp³)-C(sp³) bond formation”
ChemRxiv **2022**
DOI: [10.26434/chemrxiv-2022-8j1df](https://doi.org/10.26434/chemrxiv-2022-8j1df)
- 3) S. Bonciolini, T. Noël, L. Capaldo ([as corresponding author](#))
“Synthetic applications of Photocatalyzed Halogen-radical mediated Hydrogen Atom Transfer for C-H bond functionalization”
Eur. J. Org. Chem. **2022**
DOI: [10.1002/ejoc.202200417](https://doi.org/10.1002/ejoc.202200417)
- 4) L. Capaldo, T. Noël, D. Ravelli
“Photocatalytic generation of Ligated Boryl Radicals (LBRs) from tertiary amine-borane complexes: an emerging tool in organic synthesis”
Chem. Catal. **2022**, 2, 957–966
DOI: [10.1016/j.checat.2022.03.005](https://doi.org/10.1016/j.checat.2022.03.005)
- 5) L. Capaldo, S. Bonciolini, A. Pulcinella, M. Nuno, T. Noël
“Modular allylation of C(sp³)-H bonds by combining decatungstate photocatalysis and HWE olefination in flow”
Chem. Sci. **2022**, 13, 7325–7331
DOI: [10.1039/D2SC01581A](https://doi.org/10.1039/D2SC01581A)
- 6) T. Wan, Z. Wen, G. Laudadio, L. Capaldo, R. Lammers, J. A. Rincón, P. García-Losada, C. Mateos, M. O. Frederick, R. Broersma, T. Noël
“Accelerated and Scalable C(sp³)-H Amination via Decatungstate Photocatalysis Using a Flow Photoreactor Equipped with High-Intensity LEDs”
ACS Cent. Sci. **2022**, 8, 51–56
DOI: [10.1021/acscentsci.1c01109](https://doi.org/10.1021/acscentsci.1c01109)
- 7) R. Tinelli, D. Ravelli, A. Basso, S. C. Tarantino, L. Capaldo ([as corresponding author](#))
“Catalyst-free [2+ 2] photocycloadditions between benzils and olefins under visible light”
Photochem. Photobiol. Sci. **2022**, 21, 695–803.
DOI: [10.1007/s43630-021-00129-4](https://doi.org/10.1007/s43630-021-00129-4)
- 8) L. Capaldo, D. Ravelli, M. Fagnoni
“Direct Photocatalyzed Hydrogen Atom Transfer (HAT) for Aliphatic C-H Bonds Elaboration”
Chem. Rev. **2022**, 122, 1875–1924
DOI: [10.1021/acs.chemrev.1c00263](https://doi.org/10.1021/acs.chemrev.1c00263)
- 9) T. Wan, L. Capaldo, G. Laudadio, A. V. Nyuchev, J. A. Rincón, P. García-Losada, C. Mateos, M. O. Frederick, M. Nuño, T. Noël
“Decatungstate-mediated C(sp³)-H Heteroarylation via Radical-Polar Crossover in Batch and Flow”
Angew. Chem. Int. Ed. **2021**, 60, 17893–17897
DOI: [10.1002/ange.202104682](https://doi.org/10.1002/ange.202104682)
- 10) S. O. Scholz, J. B. Kidd, L. Capaldo, N. E. Flikweert, R. M. Littlefield, T. P. Yoon
“Construction of Complex Cyclobutane Building Blocks by Photosensitized [2 + 2] Cycloaddition of Vinyl Boronate Esters”
Org. Lett. **2021**, 23, 3496–3501
DOI: [10.1021/acs.orglett.1c00938](https://doi.org/10.1021/acs.orglett.1c00938)
- 11) L. Capaldo and D. Ravelli ([as corresponding author](#))
“Decatungstate as Direct Hydrogen Atom Transfer Photocatalyst for SOMophilic Alkynylation”
Org. Lett. **2021**, 23, 2243–2247
DOI: [10.1021/acs.orglett.1c00381](https://doi.org/10.1021/acs.orglett.1c00381)
- 12) L. Capaldo, L. L. Quadri, D. Merli, D. Ravelli
“Photoelectrochemical Cross-Dehydrogenative Coupling of Benzothiazoles with Strong Aliphatic C-H Bonds”
Chem. Commun. **2021**, 57, 4424–4427
DOI: [10.1039/D1CC01012C](https://doi.org/10.1039/D1CC01012C)
- 13) L. Capaldo, M. Ertl, M. Fagnoni, G. Knör and D. Ravelli
“Antimony-Oxo Porphyrins as Photocatalysts for Redox-Neutral C-H to C-C Bond Conversion”
ACS Catal. **2020**, 10, 9057–9064
DOI: [10.1021/acscatal.0c02250](https://doi.org/10.1021/acscatal.0c02250)
- 14) L. Capaldo, L. L. Quadri and D. Ravelli
“Photocatalytic hydrogen atom transfer: the philosopher's stone for late-stage functionalization?”
Green Chem. **2020**, 22, 3376–3396
DOI: [10.1039/D0GC01035A](https://doi.org/10.1039/D0GC01035A)
- 15) L. Capaldo and D. Ravelli ([as corresponding author](#))
“The Dark Side of Photocatalysis: One Thousand Ways to Close the Cycle”
Eur. J. Org. Chem. **2020**, 2783–2806
DOI: [10.1002/ejoc.202000144](https://doi.org/10.1002/ejoc.202000144)
- 16) T. Basile, L. Capaldo, D. Ravelli and Paolo Quadrelli
“Photocatalyzed Generation of Nitrosocarbonyl Intermediates Under Solar Light Irradiation”
Eur. J. Org. Chem. **2020**, 2020, 1443–1447
DOI: [10.1002/ejoc.201900596](https://doi.org/10.1002/ejoc.201900596)
- 17) L. Capaldo, L. L. Quadri, D. Ravelli
“Merging Photocatalysis with Electrochemistry: The Dawn of a new Alliance in Organic Synthesis”
Angew. Chem. Int. Ed., **2019**, 58, 17508–17510
DOI: [10.1002/anie.201910348](https://doi.org/10.1002/anie.201910348)
- 18) C. Raviola, L. Capaldo and D. Ravelli
“A tan for molecules: photocatalyzed synthesis with direct sunlight”
Rend. Lincei-Sci. Fis., **2019**, 30, 485–495
DOI: [10.1007/s12210-019-00826-4](https://doi.org/10.1007/s12210-019-00826-4)
- 19) A. Aliprandi, L. Capaldo, C. Bobica, S. Silvestrini and L. De Cola
“Effects of the Molecular Design on the Supramolecular Organization of Luminescent Pt(II) Complexes”
Isr. J. Chem. **2019**, 59, 892–897
DOI: [10.1002/ijch.201900047](https://doi.org/10.1002/ijch.201900047)
- 20) L. Capaldo, D. Merli, M. Fagnoni and D. Ravelli
“Visible Light Uranyl Photocatalysis: Direct C-H to C-C Bond Conversion”
ACS Catal., **2019**, 9, 3054–3058
DOI: [10.1021/acscatal.9b00287](https://doi.org/10.1021/acscatal.9b00287)
- 21) L. Capaldo, D. Ravelli
“Alkoxy Radicals Generation: Facile Photocatalytic Reduction of N-Alkoxyazinium or Azolium Salts”
Chem. Commun. **2019**, 55, 3029–3032
DOI: [10.1039/C9CC00035F](https://doi.org/10.1039/C9CC00035F)
- 22) L. Capaldo, R. Riccardi, D. Ravelli and M. Fagnoni
“Acyl Radicals from Acylsilanes: Photoredox-Catalyzed Synthesis of Unsymmetrical Ketones”
ACS Catal. **2018**, 8, 304–309
DOI: [10.1021/acscatal.7b03719](https://doi.org/10.1021/acscatal.7b03719)
- 23) L. Capaldo, S. Garbarino, S. Protti, M. Fagnoni, and D. Ravelli
“Processi fotocatalitici via anione decatungstato per la sintesi organica”
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- 24) L. Capaldo, M. Fagnoni and D. Ravelli
“Vinylpyridines as Building Blocks for the Photocatalyzed Synthesis of Alkylpyridines”
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DOI: [10.1002/chem.201701346](https://doi.org/10.1002/chem.201701346)
- 25) L. Capaldo and D. Ravelli
“Hydrogen Atom Transfer (HAT): A Versatile Strategy for Substrate Activation in Photocatalyzed Organic Synthesis”
Eur. J. Org. Chem. **2017**, 2056–2071
DOI: [10.1002/ejoc.201601485](https://doi.org/10.1002/ejoc.201601485)
- 26) L. Capaldo, L. Buzzetti, D. Merli, M. Fagnoni, and D. Ravelli
“Smooth Photocatalyzed Benzoylation of Electrophilic Olefins via Decarboxylation of Arylacetic Acid”

