

## CURRICULUM VITAE

### PERSONAL DATA:

LAST NAME: VALENTINI  
First Name: FEDERICA

---

### EDUCATION AND FORMATION:

- 17/11/2021 – 14/11/2022** **INSTM Fellowship**, *University of Perugia, Department of Chemistry, Biology and Biotechnologies, Via Elce di Sotto 8, 06123, Perugia*  
*Supervisor: Prof. Luigi Vaccaro*
- 16/11/2020 – 15/11/2021** **Post-Lauream Fellowship**, *University of Perugia, Department of Chemistry, Biology and Biotechnologies, Via Elce di Sotto 8, 06123, Perugia*  
*Supervisor: Prof. Luigi Vaccaro*
- 15/11/2019 – 14/11/2020** **Post-Lauream Fellowship**, *University of Perugia, Department of Chemistry, Biology and Biotechnologies, Via Elce di Sotto 8, 06123, Perugia*  
*Supervisor: Prof. Luigi Vaccaro*
- 13/06/2019** **Abilitation to the Profession of Chemist**  
*Degree: 173/200*
- 01/11/2016 – 31/10/2019** **Ph.D in Chemical Sciences**, *University of Perugia, Department of Chemistry, Biology and Biotechnologies, Via Elce di Sotto 8, 06123, Perugia*  
*Supervisor: Prof. Luigi Vaccaro*
- 03/04/2018 – 02/04/2019** **Post-Lauream Fellowship**, *University of Perugia, Department of Chemistry, Biology and Biotechnologies, Via Elce di Sotto 8, 06123, Perugia*
- 03/04/2017 – 02/04/2018** **Post-Lauream Fellowship**, *University of Perugia, Department of Chemistry, Biology and Biotechnologies, Via Elce di Sotto 8, 06123, Perugia*
- 29/09/2014 – 14/10/2016** **MSc Degree in Chemical Sciences**, *University of Perugia, Department of Chemistry, Biology and Biotechnologies, Via Elce di Sotto 8, 06123, Perugia*  
*Thesis subject: Spectral and Kinetic Studies of Hydrogenation Processes Catalyzed by Metal Nanoparticles*  
*Degree: 110/110 summa cum laude*
- 19/10/2011 – 25/09/2014** **BSc Degree in Chemical Sciences**, *University of Perugia, Department of Chemistry, Biology and Biotechnologies, Via Elce di Sotto 8, 06123, Perugia*  
*Thesis subject: Photochemical Behaviour and DNA interaction of neutral and ionic Cyano-derivatives as potential anticancer drugs*  
*Degree: 110/110*
- 

### LANGUAGE SKILLS:

**Native language:** *Italian*  
**Other languages:** *English*

---

## CONGRESS PARTECIPATION:

- 28-29/10/2021 XVIII Convegno Nazionale sulle Reazioni Pericicliche e Sintesi di Etero e Carbocicli  
Oral Communication
- 14-23/09/2021 XXVII Congresso Nazionale della Società Chimica Italiana  
Oral Communication
- 24/04/2021 Giornate della Green Chemistry  
Poster Communication
- 3-6/11/2020 1st Virtual Symposium for Young Organic Chemists - Società Chimica Italiana  
Oral communication
- 29/09/2020 VIII Workshop Nazionale Gruppo Interdivisionale di Green Chemistry-Chimica Sostenibile  
Poster communication
- 19-20/09/2019 TUMA 2019- XXXVII CONVEGNO INTERREGIONALE  
Oral communication
- 5/07/2019 VII Workshop Nazionale Gruppo Interdivisionale di Green Chemistry - Chimica Sostenibile  
Poster communication
- 27/01-1/02/2019 European Winter School on Physical Organic Chemistry - E-WISPOC 2019  
Poster communication
- 22-24/09/2018 1<sup>st</sup> H-CCAT Summer School  
Poster Communication
- 9-13/09/2018 XXXVIII Convegno della Divisione di Chimica Organica – CDCO 2018  
Poster Communication
- 19-23/08/2018 256<sup>th</sup> American Chemical Society National Meeting & Exposition
- 15/06/2018 VI Workshop Nazionale Gruppo Interdivisionale di Green Chemistry - Chimica Sostenibile  
Poster Communication
- 16/06/2017 V Workshop Nazionale Gruppo Interdivisionale di Green Chemistry - Chimica Sostenibile  
Poster communication

---

## ABROAD EXPERIENCES:

- Univeristé de Namur, Department of Chemistry, Unit of Nanomaterials Chemistry, Group of Applied Materials Chemistry (CMA) – period: **November 2017**
- The Hebrew University of Jerusalem, Institute of Chemistry, Faculty of Science. – period: **September-December 2018**

---

## TEACHING EXPERIENCES AND RELATED ACTIVITIES:

- 2020-2021 “Master di II Livello in Drug Design and Synthesis”, Department of Biotechnology, Chemistry and Pharmacy, University of Siena  
**Teaching** “Green methodologies for the synthesis of pharmaceutically active compounds/Green Metrics”
- 2021-2022 “Master di II Livello in Drug Design and Synthesis”, Department of Biotechnology, Chemistry and Pharmacy, University of Siena  
**Teaching** “Green methodologies for the synthesis of pharmaceutically active compounds/Green Metrics/Laboratory of E-factor calculation”

- 2020-to date “Cultore della Materia” (Subject Expert) in “Processi chimici di valorizzazione delle biomasse”, University of Perugia, Department of Chemistry, Biology and Biotechnology
- 2020-to date “Cultore della Materia” (Subject Expert) in “Chimica dei polimeri”, University of Perugia, Department of Chemistry, Biology and Biotechnology
- 2020-to date “Cultore della Materia” (Subject Expert) in “Processi sintetici bio-eco-compatibili”, University of Perugia, Department of Chemistry, Biology and Biotechnology

**Thesis co-supervisor:**

- 2019-2020 thesis title: “Sintesi di supporti polistirenici macroreticolati per l’immobilizzazione di tag-ionici come organocatalizzatori”
- 2020-2021 thesis title: “Un nuovo catalizzatore eterogeneo per la minimizzazione dei rifiuti nella amminazione riduttiva dei fenoli”

---

**SCIENTIFIC SKILLS:**

- Design, characterization and use of heterogeneous catalytic systems
- Development of hydrogenative processes exploiting also Liquid Organic Hydrogen Carriers
- Implementation of sustainable process for the synthesis of organic compounds
- Use, maintenance and calibration of GLC and GC coupled with methanizer, GC-MS, MP-AES, Elemental Analyzer instruments

---

**AWARDS AND HONOURS:**

- “Cinzia Chiappe” prize for the best Ph.D. thesis in the field of Green Chemistry (2021)  
Assigned by Gruppo Interdivisionale di Green Chemistry – Chimica Sostenibile of the Società Chimica Italiana (SCI)
- Synfacts Highlight (*Synfacts* **2019**, 15 (04), 0413) article: Pd(II)-Complex-Catalyzed Mizoroki–Heck Reaction in  $\gamma$ -Valerolactone (*Green Chem.* **2019**, 21, 355–360)

---

**PUBLICATIONS:**

1. **Federica Valentini**, Niccolò Santillo, Chiara Petrucci, Daniela Lanari, Elena Petricci, Maurizio Taddei and Luigi Vaccaro, Continuous-Flow Palladium-Catalyzed Synthesis of Cyclohexanones from Phenols using Sodium Formate as a Safe Hydrogen Source *ChemCatChem* **2018**, 10,1277–1281
2. **F. Valentini**, H. Mahmoudi, L. A. Bivona, O. Piermatti, M. Bagherzadeh, L. Fusaro, C. Aprile, A. Marrocchi and L. Vaccaro, “Polymer-supported bis-1,2,4-triazolium salt framework as metal nanoparticle stabilizer for high-loaded Pd(0) catalyst”. *ACS Sustainable Chem. Eng.*, **2019**, 7, 6939 – 6946
3. H. Mahmoudi, **F. Valentini**, F. Ferlin, L. A. Bivona, I. Anastasiou, L. Fusaro, C. Aprile, A. Marrocchi, and L. Vaccaro, “Tailored polymeric cationic tag-anionic Pd(II) complex as catalyst for the low-leaching Heck-Mizoroki coupling in flow and in biomass-derived GVL”. *Green Chem.*, **2019**, 21, 355 – 360
4. **Federica Valentini**, Vadym Kozell, Chiara Petrucci, Assunta Marrocchi, Yanlong Gu, Dmitri Gelman, Luigi Vaccaro, “Formic acid, a biomass-derived source of energy and hydrogen for biomass upgrading”. *Energy Environ. Sci.*, **2019**, 12, 2646 – 2664
5. Shuruq Mujahed, **Federica Valentini**, Shirel Cohen, Luigi Vaccaro, and Dmitri Gelman “Polymer-Anchored Bifunctional Pincer Catalysts for Chemoselective Transfer Hydrogenation and Related Reactions”. *ChemSusChem*, **2019**, 12, 4693–4699.
6. Daniëla C. Nobre, Carla Cunha, AlessandroPorciello, **Federica Valentini**, Assunta Marrocchi, Luigi Vaccaro, Adelino M. Galvão, J. Sérgio Seixas de Melo “Photoresponsive N,N’-disubstituted indigo derivatives” *Dyes and Pigments*, **2020**, 176, 108197

- Daniele Sciosci, **Federica Valentini**, Francesco Ferlin, Shaomin Chen, Yanlong Gu, Oriana Piermatti and Luigi Vaccaro "A heterogeneous and recoverable palladium catalyst to access the regioselective C–H alkenylation of quinoline N-oxides" *Green Chem.*, **2020**, *22*, 6560–6566
- Federica Valentini**, Giulia Brufani, Loredana Latterini, Luigi Vaccaro "Metal Nanoparticles Catalyzed C–C Bond Formation via C–H Activation" in *Advanced Heterogeneous Catalysts Volume 1: Applications at the Nano-Scale*; pp-513-543
- Federica Valentini**, Luigi Vaccaro "Azeotropes as Powerful Tool for Waste Minimization in Industry and Chemical Processes" *Molecules* **2020**, *25*, 5264
- Francesco Ferlin, **Federica Valentini**, Giulia Brufani, Daniela Lanari, Luigi Vaccaro "Waste-Minimized Cyanosilylation of Carbonyls Using Fluoride on Polymeric Ionic Tags in Batch and under Continuous Flow Conditions" *ACS Sustainable Chem. Eng.* **2021**, *9*, 5740–5749
- Valeria Trombettoni, Francesco Ferlin, **Federica Valentini**, Filippo Campana, Matteo Silveti, Luigi Vaccaro "POLITAG-Pd(0) catalyzed continuous flow hydrogenation of lignin-derived phenolic compounds using sodium formate as a safe H-source" *Mol. Catal.*, **2021**, *509*, 111613.
- Volker Hessel, Marc Escriba-Gelonch, Jodie Bricout, Nam Nghiep Tran, Aikaterini Anastasopoulou, Francesco Ferlin, **Federica Valentini**, Daniela Lanari, and Luigi Vaccaro "Quantitative Sustainability Assessment of Flow Chemistry—From Simple Metrics to Holistic Assessment" *ACS Sustainable Chem. Eng.* **2021**, *9*, 9508–9540.
- Federica Valentini**, Oriana Piermatti, Luigi Vaccaro "Metal Nanoparticles as Sustainable Tools for C–N Bond Formation via C–H Activation" *Molecules* **2021**, *26*, 4106.
- Federica Valentini**, Francesco Ferlin, Simone Lilli, Assunta Marrocchi, Liu Ping, Yanlong Gu and Luigi Vaccaro "Valorisation of urban waste to access low-cost heterogeneous palladium catalysts for cross-coupling reactions in biomass-derived  $\gamma$ -valerolactone" *Green Chem.*, **2021**, *23*, 5887-5895.
- Francesco Ferlin, Daniele Sciosci, **Federica Valentini**, Janet Menzio, Giancarlo Cravotto, Katia Martina and Luigi Vaccaro "Si-Gly-CD-PdNPs as a hybrid heterogeneous catalyst for environmentally friendly continuous flow Sonogashira cross-coupling" *Green Chem.*, **2021**, *23*, 7210-7218
- Francesco Ferlin, **Federica Valentini**, Assunta Marrocchi, Luigi Vaccaro "Catalytic Biomass Upgrading Exploiting Liquid Organic Hydrogen Carriers (LOHCs)" *ACS Sustainable Chem. Eng.* **2021**, *9*, 9604–9624
- Federica Valentini**, Francesco Ferlin, Elena Tomarelli, Hamed Mahmoudi, Mojtaba Bagherzadeh, Massimo Calamante, Luigi Vaccaro, "A Waste-Minimized Approach to Cassar-Heck Reaction Based on POLITAG-Pd<sup>0</sup> Heterogeneous Catalyst and Recoverable Acetonitrile Azeotrope" *ChemSusChem* **2021**, *14*, 3359
- Francesco Ferlin, **Federica Valentini**, Daniele Sciosci, Massimo Calamante, Elena Petricci, Luigi Vaccaro "Biomass Waste-Derived Pd–PiNe Catalyst for the Continuous-Flow Copper-Free Sonogashira Reaction in a CPME–Water Azeotropic Mixture" *ACS Sustainable Chem. Eng.* **2021**, *9*, 12196–12204.
- Yongchul Lee, Dongil Ho, **Federica Valentini**, Taeshik Earmme, Assunta Marrocchi, Luigi Vaccaro, Choongik Kim, "Improving the charge transport performance of solution-processed organic field-effect transistors using green solvent additives" *J. Mater. Chem. C*, **2021**, *9*, 16506–16515.
- Francesco Ferlin, Nam Nghiep Tran, Aikaterini Anastasopoulou, Marc Escribà Gelonch, Daniela Lanari, **Federica Valentini**, Volker Hessel and Luigi Vaccaro "From green chemistry principles to sustainable flow chemistry" *In Flow Chemistry—Applications*. Walter de Gruyter GmbH & Co KG (2021) pp-159-192
- Federica Valentini**, Assunta Marrocchi, Luigi Vaccaro, "Liquid Organic Hydrogen Carriers (LOHCs) as H-Source for Bio-Derived Fuels and Additives Production." *Adv. Energy Mater.* **2022**, *12*, 2103362.
- Nihad Salameh, Francesco Ferlin, **Federica Valentini**, Ioannis Anastasiou, Luigi Vaccaro, "Waste-Minimized Continuous-Flow Synthesis of Oxindoles Exploiting a Polymer-Supported N Heterocyclic Palladium Carbene Complex in a CPME/Water Azeotrope" *ACS Sustainable Chem. Eng.* **2022**, *10*, 3766–3776
- Luigi Vaccaro, Assunta Marrocchi, **Federica Valentini** "Safe and sustainable hydrogen production using Liquid Organic Hydrogen Carriers (LOHCs)" *Chem. Today*, **2022**, *40* (3)

24. **Federica Valentini**, Giulia Brufani, Benedetta Di Erasmo, Luigi Vaccaro “ $\gamma$ -Valerolactone (GVL) as a green and efficient dipolar aprotic reaction medium” *Current Opinion in Green and Sustainable Chemistry*, **2022**, 36, 100634
25. **Federica Valentini**, Benedetta Di Erasmo, Carlo Ciancuti, Simone Rossi, Samuele Maramai, Maurizio Taddei, Luigi Vaccaro “Macroreticular POLITAG-Pd (0) for the waste minimized hydrogenation/reductive amination of phenols using formic acid as hydrogen source” *Catal. Today* **2022**, *In press*. doi: 10.1016/j.cattod.2022.07.001

Perugia, 10/08/2022