Nicola Schiaroli

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Date/place of birth: 04/10/1989, Senigallia (AN)

Nationality: Italian

Scientometric Data (Scopus, February 2026)

Documents: 20

H-INDEX: 11

Number of citations: 287

Work experience

01/2022 – to date

Junior assistant professor (fixed-term)

Department of Science and High Technology,

University of Insubria, Como, Italy

- Development of new heterogeneous catalysts and innovative processes for the production of fine and intermediate chemicals using strategies with low environmental impact.
- Upgrading of bio-based platform molecules
- Biofuel production
- Synthesis, characterization, and optimization of acid, base and composite heterogenous catalysts for industrial applications

05/2021 – 12/2021

Postdoctoral research fellow

Department of Science and High Technology,

University of Insubria, Como, Italy

- Acylations and alkylations processes for the upgrading of substrates of industrial interests

11/2018 – 04/2021

Postdoctoral research fellow

Department of Industrial Chemistry,

University of Bologna, Bologna, Italy

- Development of new In-based catalysts for CO_2 hydrogenation to methanol
- Synthesis, characterization, and testing of heterogeneous catalysts for CO_2 valorization through biogas methanation and/or steam/dry reforming reactions
- Designing, construction and running of lab scale catalysts test units

10/2015 – 10/2018 (defence on 04/2019)

PhD in Chemistry

Department of Industrial Chemistry,

University of Bologna, Bologna, Italy

PhD thesis: Synthesis gas production by combined Steam and Dry Reforming of clean biogas

Supervisor: Prof. Angelo Vaccari

05/2014 – 10/2015 Research grant holder

Department of Industrial Chemistry,

University of Bologna, Bologna, Italy

- New catalysts for high temperature water gas shift reaction. Industrial partner: Air Liquide

10/2011 – 03/2014 Master's degree, Industrial Chemistry

Department of Industrial Chemistry,

University of Bologna, Bologna, Italy

Thesis: Electrosynthesis of catalysts containing Rh and Pt on metal supports

09/2008 – 10/2011 Bachelor's degree, Chemistry and Environmental Technologies: Environment, energy, and wastes.

Thesis: Atmospheric corrosion of a quaternary bronze exposed in an urban-coastal area

Department of Industrial Chemistry,

University of Bologna (Rimini campus)

Skills

- Designing, optimizing, building, revamping, and running of lab-scale plants.
- Experience in continuous and batch processes in both liquid and gas phase.
- Development of new catalytic materials:

  Synthesis of oxide-based catalysts though coprecipitation, impregnation, sol-gel techniques
  Coating of catalysts on structured metallic supports
  Synthesis of polymer-oxides composite materials for catalytic applications

- Analyses and material characterization:

  Gas Chromatography
  Mass spectroscopy
  Thermogravimetric analysis
  XRD analysis
  Temperature programmed reduction/oxidation/desorption techniques
  SEM observation
  TEM interpretation

Porosimetry and BET analysis
IR spectroscopy in-situ/in-operando

- Report and paper writing.

- Excellent knowledge of several software for data analyses/interpretation.

Teaching activities

Academic teacher of “Formulation chemistry and technologies”, bachelor’s degree in chemistry and industrial chemistry, University of Insubria, 2022.

Academic teacher of “Waste treatment and water purification”, bachelor’s degree in chemistry and industrial chemistry, University of Insubria, 2022-2023.

Supervisor and co-supervisor of more than 20 bachelor and master theses

Languages

Italian

English

Publications

- **N. Schiaroli***, F. Foschi, M. Mella, C. Lucarelli “C-acylation of Guaiacol with acetic acid over solid acid catalysts under mild reaction conditions”, ChemCatChem, 2025, 17, 23, e01112.

- A. Inayat, P. Wojnarova, P. Jachimowicz, J. De Maron, E. Orfei, **N. Schiaroli**, C. Lucarelli, K. Gorecki, F. Basile, P. Lestinsky, J. Rusin “Valorization of food waste into renewable fuels via anaerobic digestion and inline CO_2 reforming over Ni-based catalysts”, Fuel Processing Technology, 2025, 278, 108348.

- A. Cingolani, **N. Schiaroli**, C. Lucarelli, C. Lenzi, A. Masetti, C. Cesari, F. Forti, S. Zacchini, J. De Maron, F.L. Basile, R. Mazzoni “Following the in situ pathway of photoactivated cyclopentadienone-NHC iron complexes as ammonia-borane dehydrocoupling bifunctional catalysts”, European Journal of Inorganic Chemistry, 2025, 28, 22, e202500203.

- **N. Schiaroli***, L. Scaglione, R. Mandioni, F. Foschi, R. Sandro, C. Lucarelli “Cu-based catalysts for the one-pot condensation-hydrogenation of cyclopentanone to produce valuable SAF precursors”, ChemCatChem, 2025, 17, 3, e202401586.

- A. Maspero, F. Bardelli, K.F. Konidaris, M. Uboldi, C. Lucarelli, **N. Schiaroli**, J.G. Vitillo “Unraveling transfer hydrogenation mechanisms by ammonia borane to alkenes over self-healing copper nanoparticles: the complementary role of N-H bond, surface, and solvent”, ACS Catalysis, 2024, 14, 12, 9594-9606.

- **N. Schiaroli**, C. Loro, S. Colombo, G. Broggini, M. Papis, F. Foschi “Morpholine scaffolds’ preparation for foldamers’ design and construction”, Asian Journal of Organic Chemistry, 2024, 13, 1, e202300540.

- **N. Schiaroli***, A. Allegri, M. Eberle, S. Billi, A. Guerrini, S. Albonetti, A. Vaccari, T. Tabanelli, C. Lucarelli “Superacid resin-based heterogeneous catalysts for the selective acylation of 1,2-methylenedioxybenzene”, ChemSusChem, 2023, e202300903.

- M.E. Potter, S. Mediavilla Madrigal, E. Campbell, L.J. Allen, U. Vyas, S. Parry, A. Garcìa-Zaragova, L.M. Martìnez-Prieto, P. Oña-Burgos, M. Lützen, C.D. Damsgaard, E. Castellòn, **N. Schiaroli**, G. Fornasari, P. Benito, A.M. Beale “A high pressure operando spectroscopy examination of bimetallic interactions in “metal efficient” palladium/In_2O_3/Al_2O_3 catalysts for CO_2 hydrogenation” Angewandte Chemie Interanational Edition, 2023, 62, e202312645.

- **N. Schiaroli**, L. Negahdar, M. Lützen, P. Hoang Ho, L. J. Allen, A. Natoli, F. Ospitali, F. Maluta, E. Rodrígueza-Castellón, C. D. Damsgaard, G. Fornasari, A. M. Beale, P. Benito “Efficient low-loaded ternary Pd-In2O3-Al2O3 catalysts for methanol production” Journal of Catalysis, 2023, 424, 140-151.

- L. Grazia, T. Della Rosa, D. Bonincontro, T. Tabanelli, **N. Schiaroli**, F. Cavani, C. Lucarelli, S. Albonetti “CaO as a cheap, eco-friendly material for the continous-flow, gas-phase, catalytic trasnfer hydrogenation of furfural with methanol” Catalysis Today, 2023, 420, 114036

- S. Copelli, M. Barozzi, **N. Schiaroli**, A. Melchiorre, F. Florit “Investigation of the PI control parameter on the low temperature synthesis of 2-octanone” Chemical Engineering Transactions, 2023, 99, 499-504.

- P.H. Ho, G. Sanghez de Luna, **N. Schiaroli**, A. Natoli, F. Ospitali, M. Battisti, F. Di Renzo, C. Lucarelli, A. Vaccari, G. Fornasari, P. Benito “Effect of Fe and La on the performance of NiMgAl HT-derived catalysts in the methanation of CO_2 and biogas” Industrial and Engineering Chemistry Research, 2022, 61, 10511-10521.

- **N. Schiaroli***, M. Battisti, P. Benito, G. Fornasari, A.G. Di Gisi, C. Lucarelli, A. Vaccari “Catalytic upgrading of clean biogas to synthesis gas” Catalysts 2022, 12, 109.

- P. Tarifa, **N. Schiaroli**, P.H. Ho, F. Cañaza, F. Ospitali, G. Sanghez de Luna, C. Lucarelli, G. Fornasari, A. Vaccari, A. Monzon, P. Benito “Steam reforming of clean biogas over Rh and Ru open-cell metallic foam structured catalysts” Catalysis Today, 2022, 383, 74-83.

- **N. Schiaroli***, M. Volanti, A. Crimaldi, F. Passarini, A. Vaccari, G.Fornasari, S. Copelli, F. Florit, C. Lucarelli “Biogas to Syngas through the Combined Steam/Dry Reforming Process: An Environmental Impact Assessment”, Energy and Fuels, 2021, 35(5), 4224-4236.

- **N. Schiaroli***, C. Lucarelli, M.C. Iapalucci, G. Fornasari, A. Crimaldi, A. Vaccari “Combined reforming of clean biogas over nanosized Ni-Rh bimetallic clusters” Catalysts, 2020, 10, 1-17.

- **N. Schiaroli***, C. Lucarelli, G. Sanghez de Luna, G. Fornasari, A. Vaccari “Ni-based catalyts to produce synthesis gas by combined reforming of clean biogas” Applied catalysis A: General, 2019, 582, 117087.

- P. Benito, A. Vaccari, C. Antonetti, D. Licursi, **N. Schiaroli**, E. Rodriguez-Castellón, A.M. Raspolli Galletti “Tunable copper-hydrotalcite derived mixed oxides for sustainable ethanol condensation to n-butanol in liquid phase” Journal of Cleaner Production, 2019, 209, 1614-1623.

- C. Lucarelli, C. Molinari, R. Faure, G. Fornasari, D. Gary, **N. Schiaroli**, A. Vaccari “Novel Cu-Zn-Al catalysts obtained from hydrotalcite-type precursors for middle-temperature water gas shift applications” Applied Clay Science, 2018, 155, 103-110.

- J. De Maron, L. Bellotti, A. Baldelli, A. Fasolini, **N. Schiaroli**, C. Lucarelli, F. Cavani, T. Tabanelli “Evaluation of the catalytic activity of metal phosphates and related oxides in the ketonization of propionic acid” Sustainable Chemistry, 2022, 3, 58-75.

Patents

- R. Faure, G. Fornasari, D. Gary, C. Lucarelli, **N. Schiaroli**, A. Vaccari “Process to synthesize a catalyst performing water-gas shift reaction at a high temperature” US2017348675A1.

- C. Lucarelli, T. Tabanelli, A. Vaccari, M. Eberle, C. Marchioro, M. Campanati, S. Billi, A. Guerrini, **N. Schiaroli** “Process for the preparation of 3,4-Methylenedioxypropiophenone” WO2022162223A1.