

Curriculum Vitae of *Dr. Alberto Villa*

Alberto Villa is presently an Assistant Professor at the University of Milan, in the Department of Chemistry. He graduated in Industrial Chemistry at University of Milan (2004) with a thesis concerning the liquid phase oxidation of glycerol with Au based catalysts. In 2007 he was awarded a PhD in Industrial Chemistry at University of Milan with a thesis concerning the development of Au, Pd and Pt nanoparticles as catalyst for liquid phase reaction. During his postdoctoral stay with Prof. Robert Schloegl at the Fritz Haber Institute of Max Planck Gesellschaft of Berlin from 2008-2009, he extended his experience to heterogeneous catalysis being project leader in the application of carbon nanotubes for biomass transformation. In 2010 he joined Laura Prati's group as Post Doc in the Department of Chemistry. In 2013 he was awarded the status of guest researcher at Catalysis Hub (UK). In 2013 he became an assistant professor at the University of Milan, in the Department of Chemistry. Since the beginning of his scientific formation he was involved in the field of the synthesis of metal nanoparticles and heterogeneous catalysis, in particular in the development of Au based catalysts. He is applying from several years to low impact environmental catalytic methodologies as alternative processes of the stoichiometric ones based on organic synthesis. His skills include the preparation and characterization of high dispersed metallic nanoparticles on oxide materials, activated carbons and carbon nanotubes and their application in the selective oxidation of alcohols and polyols. Therefore, in the project he will supervise the development and synthesis of mono and bimetallic nanoparticles, and their characterization. The scientific results are reported in 110 publications on qualified international journals, 5 contribution by volume, 1 patent, co-Editor of two books, and more than 70 communications at international Congresses. H-index of 36 with more than 3300 citations

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He actively collaborates with industrial partners (Taminco) with several research groups, in Europe (Paul Scherrer Institut, Dr. Davide Ferri; University College of London, Prof. Catlow; Rutherford Appleton Laboratory, Dr. Peter Wells; Max-Planck-Institute of Colloids and Interfaces, Dr. Giordano; Fritz Haber Institut, Dr. Su, Prof Schloegl; Karlsruher Institut für Technologie, Dr. Wang) and in United States (Oak Ridge National Laboratory TN, USA, Dr. Gabriel Veith and Dr Adjtia Savara).

Selected papers

1. Aditya Savara, Carine E. Chan-Thaw, Jonathan E. Sutton, Di Wang, Laura Prati, and Alberto Villa, "Molecular Origin of the Selectivity Differences between Palladium and Gold-Palladium in Benzyl Alcohol Oxidation: Different Oxygen Adsorption Properties", *ChemCatChem*. 2017, 9, 253
2. Alberto Villa, Nikolaos Dimitratos, Carine E. Chan-Thaw, Ceri Hammond, Gabriel M. Veith, Di Wang, Maela Manzoli, Laura Prati and Graham J. Hutchings. "Characterisation of gold catalysts." *Chem. Soc. Rev.*, 2016, 45, 4953
3. Alberto Villa, Simon J. Freakley, Marco Schiavoni, Jennifer K. Edwards, Ceri Hammond, Gabriel M. Veith, Wu Wang, Di Wang, Laura Prati, Nikolaos Dimitratos

- and Graham J. Hutchings, "Depressing the hydrogenation and decomposition reaction in H₂O₂ synthesis by supporting AuPd on oxygen functionalized carbon nanofibers", *Catal. Sci. Technol.*, 2016, 6, 694.
4. Carine E. Chan-Thaw, Lidia E. Chinchilla, Sebastian Campisi, Gianluigi A. Botton, Laura Prati, Nikolaos Dimitratos, and Alberto Villa. AuPt alloy on TiO₂, a selective and durable catalyst for the L-sorbose oxidation to 2-keto gulonic acid. *ChemSusChem*, 2015, 8, 4189 .
 5. Scott M. Rogers, C. Richard A. Catlow, Carine E. Chan-Thaw, Diego Gianolio, Emma K. Gibson, Anna Gould, Nan Jian, Andrew J. Logsdail, Richard E. Palmer, Laura Prati, Nikolaos Dimitratos, Alberto Villa, and Peter P. Wells. "Tailoring Gold Nanoparticle Characteristics and the Impact on Aqueous-Phase Oxidation of Glycerol". *ACS Catalysis*, 2015, 5, 4377.
 6. Alberto Villa, Nikolaos Dimitratos, Carine E. Chan-Thaw, Ceri Hammond, Laura Prati, and Graham J. Hutchings. "Glycerol Oxidation Using Gold-Containing Catalysts". *Acc. Chem. Res.* 2015, 48, 1403–1412.
 7. Alberto Villa, Sebastiano Campisi, Khaled M. H. Mohammed, Nikolaos Dimitratos, Floriana Vindigni, Maela Manzoli, Wilm Jones, Michael Bowker, Graham J. Hutchings and Laura Prati, "Tailoring the selectivity of glycerol oxidation by tuning the acid-base properties of Au catalysts", *Catal. Sci. Technol.*, 2015, 5, 1126.
 8. Alberto Villa, Di Wang, Dang Sheng S and Laura Prati, "New challenges in gold catalysis: bimetallic systems", *Catal. Sci. Technol.*, 2015, 5, 55.
 9. Alberto Villa, Marco Schiavoni, Sebastiano Campisi, Gabriel M. Veith, and Laura Prati, "Pd-modified Au on Carbon as an Effective and Durable Catalyst for the Direct Oxidation of HMF to 2,5-Furandicarboxylic Acid" *ChemSusChem* 2013, 6, 609 .
 10. Laura Prati and Alberto Villa, "Gold Colloids: From Quasi-Homogeneous to Heterogeneous Catalytic Systems", *Acc. Chem. Res.*, 2014, 47, 855.
 11. Alberto Villa, Carine E. Chan-Thaw, Gabriel M. Veith, Karren L. More, Davide Ferri and Laura Prati, "Au on Nanosized NiO: A Cooperative Effect between Au and Nanosized NiO in the Base-Free Alcohol Oxidation", *ChemCatChem*, 2011, 3, 1612.
 12. Alberto Villa, Gabriel M. Veith, and Laura Prati, "Selective Oxidation of Glycerol under Acidic Conditions Using Gold Catalysts", *Ang. Chem. Int. Ed.*, 2010, 49, 4499.