

Chirality of Gold Nanoparticles

Prof. Thomas Bürgi

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Professional Career

1991: Diploma, Coherent Antistokes Raman scattering (CARS) on clusters, Bern
1995: PhD, Laser spectroscopy and quantum chemical calculation of hydrogen-bonded and van-der-Waals complexes, Prof. Samuel Leutwyler, Bern

1995 – 1997: Post-Doc, Massachusetts Institute of Technology, Cambridge, MA, USA (reactivity of surface and subsurface hydrogen in Ni-catalyzed hydrogenation reactions in a high resolution electron energy loss spectroscopy (HREELS) molecular beam) with Prof. Sylvia T. Ceyer

1997: Oberassistent in the Group of Prof. Alfons Baiker, ETH Zürich, investigation of solid-liquid interfaces by in situ-ATR, mechanism of the heterogenous enantioselective hydrogenation of carbonyl compounds over chirally modified Pt-catalysts

2002: Habilitation, Privatdozent at ETH Zürich

2003: Professor for Physical Chemistry, University of Neuchâtel

2008: Professor for Physical Chemistry, University of Heidelberg

2010: Professor for Physical Chemistry, University of Geneva



Research Interests

Research orientations in the field of physical chemistry:

- surface chemistry
- nanochemistry
- development of *in situ* spectroscopic methods

Covered subjects:

- modification of surfaces with polymers for applications with biosensors
- preparation, characterization and organization in 1, 2, and 3 dimensions of metal nano-aggregates
- chiral surfaces and nanoparticles
- mechanistic studies of heterogeneous catalytic reactions by *in situ* spectroscopy (enantio-selective hydrogenations, selective oxidations, photocatalysis by TiO₂)
- vibrational circular dichroism (VCD) for the determination of the conformation of molecules in solution (experiment and theory)