

Fabrizio Mancin

Curriculum Vitae

Education and Academic Career

Fabrizio Mancin was born in Crevalcore (BO, Italy) in 1970.

He got the Laurea (M.Sc) in Chemistry cum laude from the University of Padova in 1995 (supervisor prof. Umberto Tonellato) and the Ph.D. in Chemistry from the University of Padova in 2000 (supervisor prof. Umberto Tonellato) with a thesis on metal-based receptors for supramolecular catalysis and sensing.

In 2001-2002 he was post-doc researcher at the University of Toronto in the group of Jik Chin, where he worked on the development of supramolecular receptors based on the cooperation between metal coordination and hydrogen bonds.

In 1999 he was appointed as Assistant Professor of Organic Chemistry at the Department of Chemistry of the University of Padova, where he became Associate Professor of Organic Chemistry in 2010 and eventually Full Professor in 2016.

From 2016 to 2018 he was member of the National Scientific Habilitation (ASN) panel for Organic Chemistry (03/C1).

Teaching experience

Since the academic year 2000-2001 he has been lecturing Organic Chemistry for the Degrees in Chemistry, Industrial Chemistry, Materials Sciences and Molecular Biology of the University of Padova. He also taught the courses of Nanosystems and Nanobiotechnology for the Degree in Industrial Biotechnology (up to 2014/2015) and, since 2012, the course of Supramolecular Chemistry for the Degree in Chemistry. He lectured short courses on Supramolecular Chemistry for the Ph.D. Programs in Material Sciences (2008 and 2012) and Molecular Sciences (2014), and for the High School "Scuola Galileiana" (2016). He was invited to keep lectures at the Ph.D. schools WISPOC (Bressanone, 2010), NanoMedicine (Trieste, 2013) and SAVVY (Les Diablerets, 2015).

He has been supervisor of 12 Ph.D student, 16 post-doc and several undergraduate students.

He was appointed member of 10 doctoral examination committees by the Universities of Oviedo (ES, 2014), San Sebastian (ES, 2016), Genève (CH, 2017), EPFL (CH, 2017), Trieste (IT, 2017, 2020, 2021), Padova (IT, 2018), Milano-Bicocca (IT, 2021), Auckland (NZ, 2021).

Research and funding ID

Since the beginning of his career, the research interest of Fabrizio Mancin has been focused on supramolecular chemistry and expanded, later, to nanoscience.

He started his research activity working on metallomicellar catalysis of the cleavage of carboxylic esters and on the development of artificial metallonucleases. His most original contribution in this research field is in the design of metal complexes where carefully placed organic groups cooperate to increase the activity of the system. Recently, in collaboration with P. Scrimin, he reported several examples of self-organized hydrolytic agents for DNA and RNA based on gold nanoparticles.

A second, later, research line focuses on the design of fluorescence chemosensors based on molecular systems and on silica nanoparticles. Within this line, he has proposed, with U. Tonellato and P. Tecilla, an innovative procedure for the realization of self-organized fluorescence sensors based on silica nanoparticles.

In last few years, the expertise gained in the synthesis of nanoparticles has been put at work to the preparation of nanomaterials for biomedical applications and the study of their potential toxicity. In this framework, he set up a straightforward one-pot procedure to synthesize doped, polymer-coated, targeted silica nanoparticles for drug delivery.

He received a University of Padova Young Researchers Grant in 2003 ("Artificial Nucleases"), two University of Padova Research Grants ("New optical sensors, based on the molecular self-organization and on the properties of nanosystems, for the detection of metal ions in solution", 2004-2005, and "Nanoreceptors", 2018-2019), a research contract on the "Synthesis of nanoparticles for toxicity investigations" from Veneto Nanotech in 2008-2009.

On 2010, he was granted by the European Research Council of an ERC Starting Grant (1500 K€, MOSAIC) focused on the control of the hierarchic organization of molecules forming monolayer coating nanoparticles, and on the use of such rationally designed nanoparticles as probes and catalysts. Within this project, a new interest arose on the use of NMR spectroscopy to investigate the structure and dynamics of the nanoparticles coating monolayer, and to the application of nanoparticles as "molecular sensors" in conjugation with NMR spectroscopy itself. This idea was later awarded by ERC with a Proof of Concept Grant (150 K€, INSIGHT).

On 2019, he was awarded by the Cariparo Foundation (Padova) of an Excellent Research grant (320 K€) on "Selective catalysis in supramolecular confined spaces".

On 2020 he was awarded by the AIRC Foundation (Italy) of an Investigator Grant (620 KE) on "Nanoparticle-Based Receptors for Catecholamine Profiling in Diagnosis and Prognosis of Neuroblastoma"

Bibliometric data and awards

He is co-author of about 130 papers published in international journals, 6 book chapters and 2 patents application. His h-index is 38 (WOS).

In 2014 he was awarded with the "Research Prize for Molecular Interactions" from the Italian Chemical Society (SCI).