

Chemical research in Alessandria (Italy)
Dipartimento di Scienze e Tecnologie Avanzate
Università del Piemonte Orientale "A. Avogadro"



Experimental and theoretical structural chemistry group

Prof. D. Viterbo, Dr. M. Milanesio, Dr. Gianluca Croce

Via Bellini 25/G, 15100 Alessandria (Italy) Tel: +39-0131-287414 FAX: +39-0131-287416

Mail: davide.viterbo@mfn.unipmn.it, marco.milanesio@mfn.unipmn.it

Keywords: Powder and single crystal X-Ray diffraction, Modeling, Zeolitic materials, Molecular Crystals, Inorganic-organic composite materials

Research activity

The research activity is carried out in the field of structural determination by powder and single crystal X-Ray crystallography (by conventional and synchrotron radiation X-Ray sources) and theoretical calculations. The study low order materials have been recently started, employing the small angle scattering techniques. Compounds and systems related to biomedicine and material chemistry (synthetic as zeolites, organometallic compounds, molecular complexes and natural as siliceous spicules from marine sponges) have been studied.

Relevant publications

- 1) Milanesio, M., Ugliengo, P., Viterbo, D., Appendino, G., Ab Initio Conformational Study of the Phenylisoserine Side Chain of Paclitaxel - *J. Med. Chem.*, **42**, 1999, 291-299. Milanesio,
- 2) P. J. De Clercq, Sheng-Ze Zhou, M. Sey, D. Viterbo – A model for the non enzymatic BCD cyclization of Squalene - *Angew. Chemie, Int. Ed. Engl.*, **39**, 2000, 2861-2863.
- 3) Aime S, Diana E, Gobetto R, Milanesio M, Valls E, Viterbo D., Structural and spectroscopic study of the dihydrogen bond in an imine triosmium comple - *Organometallics*, **21 (1)**, 2002, 50-5
- 4) Milanesio M, Artioli G, Gualtieri AF, Palin L, Lamberti C., Template burning inside TS-1 and Fe-MFI molecular sieves: An in situ XRPD study, *J. Am. Chem. Soc.*, **125(47)**, 2003, 14549-14558.
- 5) Croce G., Frache A., Milanesio M., Marchese L., Causà M., Viterbo D., Barbaglia A., Bolis V., Bavestrello G., Cerrano C., Benatti U., Pozzolini M., Giovine M., Amenitsch H., Structural characterization of spicules from marine sponges, *Biophys. J.*, **86(1)**, 2004, 526-534..

Available instrumentation

- 1) Single crystal X-Ray diffractometer; 2) Powder X-Ray diffractometer; 3) Available access to synchrotron radiation sources equipped with powder, single crystal and SAXS diffractometer; 4) Computer facility equipped with software of chemical interest (Jaguar, Gaussian, Macromodel, QSite, Crystal)

Teaching

Physical chemistry, theory and practice of powder and single crystal X-ray diffraction, modeling and data mining (Cambridge Structural Database, Protein Data Bank, Inorganic Structural database).