



Università
di Brescia

VISITING PROFESSOR

Prof. Małgorzata Swadźba-Kwaśny

Professor of Inorganic Chemistry — Queen's University Belfast
The QUILL Research Centre, School of Chemistry and Chemical Engineering

ABOUT

Prof. Małgorzata Swadźba-Kwaśny is Professor of Inorganic Chemistry and the Director of the QUILL Research Centre, an internationally leading centre for the study of ionic liquids and advanced functional fluids, at Queen's University Belfast. She explores liquids as functional materials, investigating how speciation, intermolecular interactions and phase behaviour govern their properties and reactivity, using techniques including multinuclear NMR and X-ray spectroscopies, thermal analysis and neutron scattering. Her work spans fundamental inorganic and physical chemistry through to applications in catalysis, metal recovery, energy storage, sustainable separations and advanced functional materials.

As part of the Visiting Professor programme, Prof. Swadźba-Kwaśny will be hosted by the DICATAM Department and the CEEP Laboratory — Catalysis for Energy and Environmental Protection at the University of Brescia, where she will give two seminars open to students, PhD candidates and researchers.

SEMINAR PROGRAMME

WEDNESDAY

22 JULY

14.30 – 17.30

Seminar Room

Advanced techniques for the characterisation of disordered materials: thermal analysis, spectroscopy and neutron scattering

The nature of disordered materials (liquids and glasses) will be discussed and contrasted with crystalline media. Strategies for multi-scale characterisation will be discussed, from local environment studied at atomic level (NMR and X-ray spectroscopies), through total nano- and microstructure by neutron scattering, to phase behaviour probed by thermal analysis.

WEDNESDAY

29 JULY

14.30 – 17.30

Seminar Room

Introduction to NMR spectroscopy for engineers

Underlying principles of multinuclear NMR spectroscopy will be explained, followed by fundamental introduction to ^1H and ^{13}C NMR spectroscopy (two most common techniques). The seminar will be concluded by other NMR techniques, including solid-state NMR spectroscopy, and their use in material science. Workshop-style problem-solving examples will be included throughout this seminar.

DICATAM — Department of Civil, Environmental, Architectural Engineering and Mathematics

University of Brescia · For information: Prof. Nancy Artioli — nancy.artioli@unibs.it