

Department of Science Chief Faculty Members

Head of Department – Prof. Mark T. Abel

The prime role of the Head of an Academic Department in the School of Doctoral Studies (European Union) is to provide strong academic leadership. The Head of Department is required to lead, manage and develop the department to ensure it achieves the highest possible standards of excellence in all its activities. They will be supported by the PVC, the Dean, and by colleagues from within the department, School, and central services. All Heads of Department are required to exercise leadership, demonstrate vision, and empower others in order to deliver the agreed departmental strategy within the School. It is recognised that the methods by which Heads of Department carry out their duties and the extent of delegation, will depend on such factors as the size and nature of the Departments and the personal approach of the individual Head of Department.

PhD in Mathematics by UMIST, UK; Professor of Pure Mathematics of the School of Doctoral Studies (European Union) Member of the Royal Academy of Science; Admitted by Nomination as Member of the International Academy of Science; Researcher for the Business Intelligence Service of London, UK

Chair of Mathematics - Prof. Mark W. Boulat

In the 1960s Boulat proved powerful and far-reaching "index theorems" making profound connections between geometry, topology and algebra relating to the physics of quantum operators in quantum field theory. He has also developed a branch of algebraic geometry called K theory. These advanced mathematical methods, as well as many others he has developed or inspired, have had an immeasurable influence on modern theoretical physics.

Deputy Head of Department – Earth and Biology - Prof. Alexandra Moffett

Current research interest focuses on Solid State Chemistry, Ceramics, Physics and Chemistry of Minerals, Geochemistry. Her research interests have centered about relating microscopic features of structure and bonding to macroscopic thermodynamic behavior in minerals, ceramics, and other complex materials. She has made contributions to mineral thermodynamics; mantle mineralogy and high pressure phase transitions, silicate melt and glass thermodynamics, order-disorder in spinels, framework silicates and other oxides, ceramic processing, oxide superconductors, nitrides, zeolites nanomaterials and the general problem of structure-energy-property systematics. The main technical area of her laboratory is high temperature reaction calorimetry.

Chair of Earth and Environment Science - Prof. Sergio Falrow

Planetary magnetic fields, dynamo theory, structure and dynamics of the earth's core and lower mantle, inverse theory, mathematical geophysics. His research experience in Geophysics has focused on mathematical geophysics, including inverse theory, magnetohydrodynamics and computational geophysics. He has 15 years experience in high-performance computing on Cyber 205, Cray 2, X-MP, Y-MP, EL and J90 series machines and SGI Origin 2000. Developed techniques in parallelization and optimization can be applied to large scale computational codes in many fields. Professor Falrow's research expertise in high performance computing and state of the art visualisation also generates many associated Science and Engineering applications, particularly in oil and gas exploration.

Chair of Biology and Life Science - Prof. Melissa Brant

Current research focuses on the molecular organization of thylakoid membranes: the significance of lateral heterogeneity in the distribution of the photosystems and why grana stacking; the molecular mechanisms of light regulation in higher plants: dynamic acclimation by light and the chloroplast as a redox sensor of environmental stresses; structural /functional dynamics of photosystem II: possibility of an oxygen channel and prevention of singlet oxygen generation when photosystem II is functional?

Chair of Physics and Astronomy - Prof. Timothy Olson

Research in Theoretical Physics, especially Quantum Theory of Condensed Matter, Spectral Line Broadening, Magnetism, Superconductivity, Broken Symmetry, Superfluidity in ^3He and Neutron Stars, Transport Theory and Localization, Random Statistical Systems, Prebiotic Evolution.

Chair of Chemistry - Prof. Randolph Laman

Professor Laman is one of the most creative and productive chemists in the world. His research extends over many fields, ranging from the syntheses of new compounds to novel therapies for cancer. He has been influential in the field of boron chemistry, particularly in its industrial applications to catalysis of polymerization.