

Warwick Chemistry Departmental Seminar



Prof Lorena Betancor

Universidad ORT Uruguay

Thursday 4 April

4.00 pm, C521, 5th floor Chemistry

‘Fit for purpose: design of stable biocatalysts through enzyme immobilization’

Biocatalysis is a powerful tool that often capitalizes the potential of enzymes for the *ex vivo* production of chemicals. However, enzymes are inherently labile and sometimes unable to resist a single cycle of catalysis outside its natural environment. Our group uses a large number of immobilization techniques to stabilise enzymes for biocatalytic studies and applications. Herein case studies will be presented to illustrate the successful preparation of active and stable biocatalysts. Special emphasis will be put on the utilization of biomimetic silica nanoparticles for the entrapment and co-immobilization of enzyme working in tandem.

Biog

Dr Betancor has focused her scientific career working in enzymology, enzyme technology and biocatalysis with diverse biotechnological applications: food industry, fine chemistry, pharmaceuticals, etc. She is a PhD from Universidad Autónoma de Madrid and during this period working at the Institute of Catalysis (CSIC, Spain). She worked as a postdoc for the Oak Ridge Institute of Science and Education at the School of Civil and Environmental Engineer (Georgia Tech, Atlanta, USA, Prof. Jim Spain) and then at the Department of Biochemistry of the University of Cambridge (Cambridge, UK, Prof. Peter Leadlay) where she studied the enzymology and molecular biology of nitroreductases, mutases and polyketide synthases and applied her previous knowledge in the design of new *in vitro* biocatalytic reactions using immobilized preparations of these enzymes. She is co-author of 56 articles in international journals, 8 book chapters and 4 patents and has been invited to review areas of enzyme immobilization and biocatalysis by relevant biotechnological review journals (Trends in Biotechnology, Biotechnology and Genetic Engineering Reviews). She is now a Professor at the Department of Biotechnology of University ORT Uruguay where she focusses her scientific interests in *in vitro* use of enzymes and multi-enzymatic systems and improvement of bioconversions via immobilization techniques.