

Chemistry Departmental Seminar



Prof. Dr. Ulrich S. Schubert

Friedrich-Schiller University Jena

‘Engineering Functional Macromolecules for the 21st Century: Tailor-made Polymers and Nanoparticles for Applications in Nanomedicine’

Thursday 23rd January

4.00 pm, Physics Lecture Theatre, Science Concourse

Pharmopolymers feature a great potential for the delivery of active pharmaceutical ingredients (API). A carrier material should be non-toxic, bind and protect its cargo from degradation, be invisible to the immune system and direct the AP to its desired place of action, where it should release the cargo without reducing its effectiveness. Here, a modular approach is described to decouple the various requirements from each other: One section is to bind the API, a second is to reduce toxicity and shield from recognition by the immune system, and an attached “director” is to navigate the carrier to a specific target. However, necessary approvals make it difficult to translate current polymer research into products relevant to the pharma industry. This lecture provides an overview about how traditional pharmapolymers such as poly(lactic acid) (PLA), poly(ethylene glycol) (PEG) or linear poly(ethylene imine) (l-PEI) can be modified, coupled to relevant building blocks, or be replaced by more tailor-made alternatives such as, e.g. poly(2-oxazoline)s.

Biography

Professor Dr. Ulrich S. Schubert is a Full Professor and Chair of Chemistry at Friedrich-Schiller University Jena in Germany.