SFB TRR 102

Polymers under Multiple Constraints

Polymer- & Soft-Matter-Seminar

Tuesday
14th October
2014

at: **5.00** pm

VDP4 1.27,
Von-Danckelmann-Platz 4,
06120 Halle

Kaustubh R. Mote

TIFR Center for Interdisciplinary Sciences, Narsinghi, Hyderabad, India

"Understanding amyloid-β aggregation and toxicity by NMR spectroscopy"

The aggregation and membrane association of amyloid-□ peptides is correlated with their toxicity to living cells. This is believed to be directly responsible for the progression of neurodegenerative diseases such as the Alzheimer's disease. However, the presence of a number of intermediate species along the aggregation pathway makes it difficult correlate the toxicity to a specific structure. In this talk, I will present combinations of fluorescence and solid state NMR spectroscopic techniques that were used to tease out the unique structural characteristics of an intermediate species that is responsible for amyloid-□ toxicity. An extension of these methods to characterize the species that interacts with the membrane will be presented. Also presented will be our recent work in the development of solid state NMR techniques, including stroboscopic 1H-detection and the multiple acquisition techniques. These improvements in solid state NMR and the cross-validation of their application to systems such as amyloid-□ using in vitro and in-vivo fluorescence techniques will hasten the process of identifying the structural motifs that may be targeted by drug-like molecules to alleviate their toxicity.various chain folding models.

Kaustubh R. Mote[1], Bappaditya Chandra[2], Debanjan Bhowmik[2], Sudipta Maiti[2] and P. K. Madhu[1,2]
[1]TIFR Center for Interdisciplinary Sciences, Narsinghi, Hyderabad, India and
[2]Department of Chemical Science, TIFR, Colaba, Mumbai, India