

# **NMR investigations of intrinsic disorder in high molecular weight proteins in relation to their function**

**Subhabrata Majumder**

*Saha Institute of Nuclear Physics  
Kolkata-700064*

The experimental structural determination techniques like X-ray crystallography and CryoEM have provided unprecedented insights into structure-function aspects of proteins. However conditional or intrinsic disorder in protein structure, that could be relevant for its function, may remain elusive by these structural biology methods. Solution NMR methods offers an avenue to probe these disorders in protein structures. Increase in molecular weight, though limits the utility of NMR to this end. In this talk, case studies on methyl NMR fingerprinting of proteins like L-asparaginase (150kDa), redox-chaperone Hsp 33 (66 KDa) shall be shown. Our results correlates the presence of disorder with their respective function.