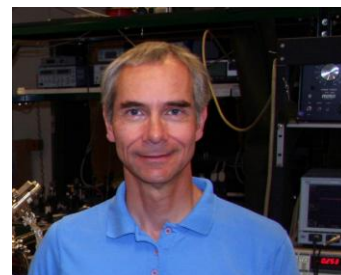


# Institute Lecture

## **Dynamics of complex systems: vibrating molecules, nanostructures, glasses, proteins in the cell and swimming fish**



**Prof. Martin Gruebele**

James R. Eiszner Chair in Chemistry, University of Illinois Urbana-Champaign

**12<sup>th</sup> December 2016, Time: 5 PM, Venue: L-4**

### **Abstract**

The talk will discuss levels of dynamics from quantum motion to animal behavior. We will see how restricted chaotic motion enables control of molecules; how we can image excited electronic states of quantum dots and carbon nanotubes with sub-nanometer spatial resolution; how we can resolve the dynamics of individual cooperative rearranging regions on glasses; how protein move and interact inside a living cell; and how physics principles can be used to show how fish swimming is really much simpler than one might think.

### **About the speaker**

Prof. Martin Gruebele was born in Stuttgart, Germany in 1964. He obtained his B.S. in 1984 and his Ph.D. in 1988 at UC Berkeley. He went on to do femtochemistry in the lab of Ahmed Zewail at Caltech, and then moved to the University of Illinois in 1992. He is currently the James R. Eiszner Professor of Chemistry, Professor of Physics, and Professor of Biophysics and Computational Biology. He is a Fellow of the American Physical, Chemical and Biophysical Societies, as well as a recipient of the Sackler International Prize in Biophysics, the Coblentz Award, and the Wilhelm Bessel Prize, among others. Prof. Gruebele is a member of the German National Academy of Sciences, of the American Academy of Arts and Sciences, and of the National Academy of Sciences (USA). He has served as Senior Editor at the Journal of Physical Chemistry, and serves as Associate Editor of the Journal of the American Chemical Society. His research includes protein and RNA folding, fast dynamics in live cells, vibrational energy flow in molecules, quantum computing and quantum control, optically assisted STM, glass dynamics, and vertebrate swimming behavior. The work is published in over 230 papers and reviews.

Tea at 4.45 PM

All interested are welcome.

Amalendu Chandra

Dean of Research and Development, IIT Kanpur