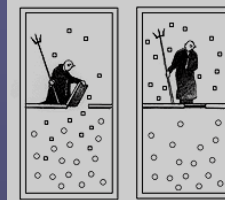
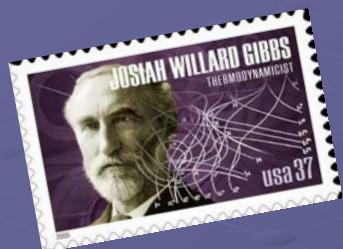


Harvard Graduate Level Course Chemistry 240



Statistical Mechanics of Chemical and Biochemical Systems



Visiting Prof. Biman Bagchi

bagchibiman@yahoo.com

M., W., F., from 11 to 12

Spring 2007

A graduate theoretical course with strong experimental and biological applications and emphasis



Theoretical

Phase space, ensembles, postulates of SM, partition functions, relationship with thermodynamics, response functions, phase transitions and nucleation, critical phenomena and Landau theory, density functional theory, glass transition, Langevin equation, time correlation function, fluctuation-dissipation theorem, linear response theory, chemical reaction dynamics (transition state theory, Smoluchowski equation, Kramers' theory).

Connection Between Theory and Experiment

Dynamical light scattering, Raman spectroscopy, electrical conductivity, solvation dynamics, electron transfer, etc

Biophysical & biochemical

Statistical mechanics of polymers and random walk, Flory-type and mean-field theories, Levinthal paradox, energy landscapes, protein folding, statistical mechanics of liquid crystals, isotropic-nematic phase transition, etc