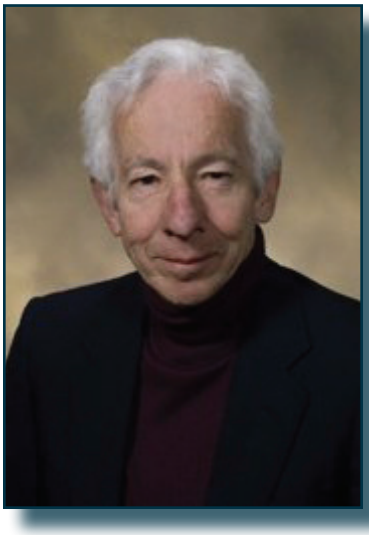
University of Minnesota
Driven to Discover℠

# Department of Chemistry

# Seminar

**9:45 a.m. Thursday, May 9, 2013 • 331 Smith Hall**




Professor

## Stephen Benkovic

Department of Chemistry
Pennsylvania State University


## *A Perspective on Biological Catalysis*

Research interests: variety of projects connected by the general theme of understanding enzyme catalysis at various levels.

Website: http://www.chem.psu.edu/directory/sjb1


## Abstract

With dihydrofolate reductase as a paradigm, we have examined the question of the importance of conformational changes and their contributions to catalysis. A variety of collaborative approaches that include nuclear magnetic relaxation, pre-steady state kinetics, fluorescence resonance energy transfer, phylogentically coherent events, and molecular dynamic simulations have focused on the parent and mutant forms of the enzyme. The collective findings support the presence of a network of residues within the protein fold that acts to generate a series of enzyme conformations along the reaction coordinate that optimize the reacting centers of the substrate and cofactor for the chemical transformation. They also allow comment on the conservation of protein dynamics throughout evolution.


**Host: Gianluigi Veglia**
**Refreshments will be served prior to the seminar.**