School of Molecular Sciences
Arizona State University

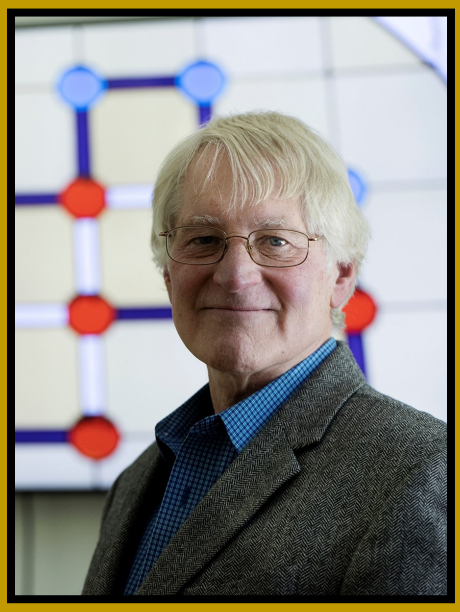
SMS Spring 2024 Eyring Seminar

Thursday March 28 | 6pm | Marston Theater (ISTB4)

Join us for a reception in ISTB4 5:00pm—5:40pm

Ken Dill, PhD

Professor, Stony Brook University



Biography:

Ken Dill is the Laufer Family Endowed Professor of Physical Biology and SUNY Distinguished Professor, and was Founding Director of the Laufer at Stony Brook University. He received SB and SM degrees from MIT in Mechanical Engineering in 1971, a PhD in Biology with BH Zimm at the University of California, San Diego, did postdoctoral research with PJ Flory at Stanford University, and was on the faculty in the Department of Pharmaceutical Chemistry at UCSF for 28 years. His research is at the intersection of statistical physics with the biophysics of proteins and cells. He has worked on the physics of protein folding; computational structural biology; proteostasis in the cell; and on foundational problems in nonequilibrium statistical physics.Dill is a past president of the Biophysical Society and a co-author of two textbooks. He received the Hans Neurath Award from the Protein Society, the Max Delbruck Award from the American Physical Society and the Sackler Prize in Biophysics. Dill is a member of the US National Academy of Sciences and the American Academy of Arts and Sciences.

The future of physical modeling of biomolecules and cells

Looking back 40 years, biomolecule modeling is no longer limited by our Molecular Dynamics methods, our forcefields, or our tools for predicting protein structures or docking poses or even binding affinities. Computational modeling is now a trusted tool for drug discovery, and ML is bringing new horsepower. What are the challenges for the next 40 years? We need top-down theories and models (cell function à molecular structure, phenotype à genotype, rather than the reverse) that explain WHY cells do what they do, how fitness landscapes choose their embodiments in molecules, the roles of environment, and the multiplicities of the paths and molecules that can embody cellular function. I'll speculate on what such theory and computation might look like.

**ZOOM option available: https://asu.zoom.us/j/81517529537*