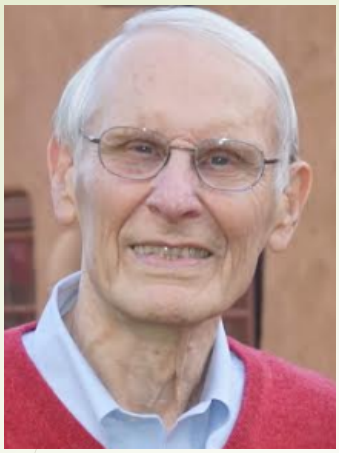


Symposium in Honor of **Prof. James Gunton's** contributions to Statistical Physics

Thursday, Sep. 21, 2017 at 3:30PM in LL. 270

You are cordially invited to join us in this symposium with talks by distinguished physicists and celebrate Jim's long career and contributions to science, on the occasion of his retirement from Lehigh University.

Program:

3:30 PM : Introduction to Symposium and a few words from **James Gunton**.

3:45 PM : **Benjamin Widom** (Cornell University): *"Critical Points, Tricritical Points, and the Vanishing Interfacial Tensions"*

Abstract: First, I will refer to Jim Gunton's exposition of the critical phenomena in the ideal Bose gas and how I have referred to it in my statistical mechanics lectures and a book. Then I will describe some results from recently published work with Kenichiro Koga on the interfacial tensions on approach to critical endpoints and tricritical points.

4:15 PM : **Robert H. Swendsen** (Carnegie Mellon University): *"0.234: The myth of the optimal acceptance ratio for Monte Carlo simulations"*

Abstract: Two well-known papers by Gelman, Roberts, and Gilks have proposed the application of the results of an interesting mathematical proof to practical optimizations of Markov Chain Monte Carlo computer simulations. In particular, they advocated tuning the simulation parameters to select an acceptance ratio of 0.234. Although the proof is valid, its significance is questionable, and its application to practical computations is not advisable. The simulation algorithm considered in the proof is very inefficient and produces poor results under all circumstances. It also produces some interesting time-shifted correlations for systems in which the equal-time correlations vanish.

4:45 PM **Theodore W. Burkhardt** (Temple University): *"Equilibrium of a Fluctuating Polymer Chain in a Channel"*

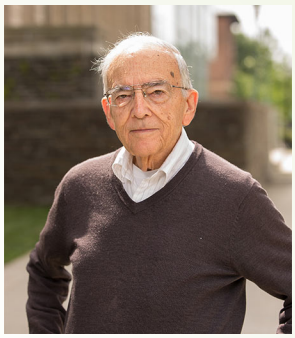
Abstract: The equilibrium statistical mechanics of a long polymer chain, fluctuating in solution in a narrow cylindrical channel, will be discussed. For a fully flexible polymer, the work required to squeeze the polymer into the channel and the extension of the polymer along the channel follow from the intuitive "blob" picture of de Gennes. For a semi-flexible polymer, i.e., a polymer with non-negligible bending energy, in a channel so narrow that the polymer is stretched out inside the channel, with few overhangs or hairpin configurations*, a different picture, proposed by Odijk, applies. Some progress in putting both the de Gennes and Odijk pictures on a firm theoretical foundation will be reviewed. * The nearly straight form of DNA in nano-channels has advantages for genomic analysis.

5:15 PM : Concluding remarks and Discussion

Speaker biographies

James Gunton: Prof. Gunton received his BA from Linfield College (Oregon), his BA from Oxford University and his PhD from Stanford University in 1967. He started his academic career at the University of Western Australia and continued with Temple University from 1968, working in the field of statistical physics. He came to Lehigh as Dean of the College of Arts and Sciences (1988-1994) and as faculty member of the Department of Physics. His research work has been carried out with grants from institutions in Japan, France, Germany, Spain, Switzerland and US. His recent research interests are in the general field of pattern formation in nonlinear, nonequilibrium systems.

Benjamin Widom: Professor Widom received his BA from Columbia University and his PhD from Cornell University and was a Research Associate at the University of North Carolina. He has been a faculty member at Cornell University since 1955, where he is currently an emeritus Goldwin Smith Professor of Chemistry. He is a member of the National Academy of Sciences. For his groundbreaking contributions to the field of statistical mechanics, he was awarded the Boltzmann medal in 1998.



Robert H. Swendsen: Professor Swendsen has worked at the University of Cologne, the KFA Jülich, Brookhaven, and IBM Zurich. In 1984, he joined Carnegie Mellon University, where he also served as Head of Physics and Associate Dean. He is a Fellow of the APS and the AAAS. He received the 2014 Aneesur Rahman Prize.

Theodore W. Burkhardt: Ted Burkhardt received a Ph.D. from Stanford University a few months after Jim Gunton. For about 15 years he did research in theoretical statistical mechanics in Europe, mainly at the Research Center in Juelich, Germany and the Laue-Langevin Institute in Grenoble, France. Since 1981 he has been a member of the Physics faculty at Temple University. He is a Fellow of the American Physical Society and has received awards for distinguished teaching and the Alexander von Humboldt Award for U.S. Senior Scientist.