

**DEPARTMENT OF MATHEMATICS AND SIMCENTER**

present

**“Computational estimation of  
average properties of macromolecules”**

by

**Dr. Ken Millett**

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October 24<sup>th</sup>, 3 p.m., UTC SimCenter Auditorium\***Networking | Light Refreshments | Seminar | Q & A***Public Invited*

The average properties of macromolecules correlate with the physical and biological properties of individual molecules. Their determination is, however, a challenging enterprise that has seen many optimistic efforts in the last 50 years employing simulations of polygonal structures and calculations of their spatial properties. As one is seeking averages, it is important that the sampling method is stochastic if one is to use a Monte Carlo strategy. Only recently has one had a rigorously proven random sampling method based upon the symplectic geometry of the configuration spaces. Even this approach left open the random sampling of polygons for which one controls their effective thickness. In this talk, we will review the historical background, describe the fundamentals of the symplectic method and the more recent development of methods

controlling the thickness of the modeled macromolecules.

Dr. Millett has served as the Chair of The Chancellor's Outreach Advisory Board (COAB), as the Regional Director of the National Science Foundation funded California Alliance for Minority Participation and, as Director of UCSB's California Mathematics and Science Teaching Program. Dr. Millett served as the appointed University of California delegate to the national Academic Assembly and was elected Chair of the Western Regional Council of the College Board. He has served as member of the American Mathematical Society's Subcommittee on Undergraduate Education and as a member of the Advisory Board of the AMS-SIAM project, "Employment and the U.S. Mathematics Doctorate: Connections with Non-Academic Opportunities." He is a member of the Board of Governors and the Science Policy Committee of the Mathematical Association of America. From 1983 through 1997 he was a member of the state wide Advisory Committee of the California Mathematics Project and served as its Chair. He has been active in the work of the Mathematicians and Educational Reform Forum and the South Coast Mathematics Partnership. Dr. Millett was the founding President and Executive Director of the California Coalition for Mathematics and Science. He is a member of the Mathematical Association of America, the American Mathematical Society, the American Association for the Advancement of Science, the European Mathematical Society, the Societe Mathematique de France, the Association for Women in Mathematics, the Society for the Advancement of Chicanos and Native Americans in Science and Sigma Xi. In 1988 he received the Carl B. Allendoerfer award and, in 1991, he received the Chauvenet Prize for an article on knot theory written with W. B. R. Lickorish. In 1998, he received the Award for Distinguished Public Service from the American Mathematical Society. In 2000, he was elected a Fellow of the American Association for the Advancement of Science. AAAS President Mary Good congratulated him on this recognition at the Fellows Forum held at the 2001 annual meeting. In 2006, Dr. Millett was given the "Giant in Science" award by the QEM/MSE Network for his "outstanding contributions to the field of mathematics and to minority participation in STEM disciplines." In 2012, he was elected a Fellow of the American Mathematical Society.