Robert Byron Bird

Robert Byron Bird is a Chemical Engineer and Professor Emeritus in the Department of Chemical Engineering at the University of Wisconsin-Madison. He is known for his research in transport phenomena of non-Newtonian fluids, including fluid dynamics of polymers, polymer kinetic theory, and rheology. He, along with Warren E. Stewart and Edwin N. Lightfoot, were co-authors of the classic textbook *Transport Phenomena*.

Bird received his B.S. degree in Chemical Engineering from the University of Illinois at Urbana-Champaign in 1947 and his Ph.D. degree in Physical Chemistry from the University of Wisconsin-Madison in 1950. During 1950-1951, he was a Postdoctoral Fellow at Instituut voor Theoretische Fysica, Universiteit van Amsterdam.

Bird is a recipient of the National Medal of Science; the Medal was awarded by President Ronald Reagan “for his profoundly influential books and research on kinetic theory, transport phenomena, the behavior of polymeric fluids, and foreign language study for engineers and scientists.” He was awarded the Bingham Medal in 1974 for his outstanding contributions to the field of rheology.

He has been a member of the National Academy of Engineering since 1969, a member of the National Academy of Sciences since 1989, as well as a member of a number of foreign academies including the Royal Dutch Academy of Sciences (1981) and the Royal Belgian Academy of Sciences (1994). Bird is also a Fellow at a number of academies, including the American Academy of Arts and Sciences since 1981, the American Physical Society since 1970, and the American Academy of Mechanics since 1983.

**Lecture Abstracts**

**GENERAL SEMINAR**

**NOVEMBER 17th**

**1060 HBLL 7:00PM**

(AUDITORIUM)

“What makes scientists and discoverers tick.”

**TECHNICAL SEMINAR**

**NOVEMBER 18th**

**W112 BNSN 4:00PM**

“An Introduction to the Kinetic Theory of Polymers (or: How can dumbbells be so smart?)”

**LECTURE ABSTRACTS**

**TECHNICAL SEMINAR**

This talk is intended to be an introduction to the kinetic theory of polymeric fluids. We start with a summary of the weird flow behavior exhibited by these fluids, then proceed to experimental measurement of material properties, the establishment of molecular models, and finally the expression for the stress tensor. The outline is thus:

1. Phunny phluid phlow phenomena
2. Measurement of “material functions”
3. Molecular modeling (“bead spring models”)
4. Setting up an ultra-simple kinetic theory
5. The theoretical results (a “constitutive equation”)
6. Conclusions and future prospects
7. Canoeing on polymeric rivers

Polymers are really fun!

**GENERAL SEMINAR**

Have you ever wondered how the great scientists, discoverers, and inventors got their start? Did they come from families in the top social strata? Did they encounter any severe setbacks or disappointments? Were there famous women among them? You may be fascinated by some of the answers that emerge from a discussion of a small number of these people: Lewis & Clark, Isabella Bird, the Wright Brothers (Orville & Wilbur), Paul Adrien Maurice Dirac, Emmy Noether, Max Born, and Robert Byron. Some of these people you may not have heard of. What were their fields of discovery? What was their impact on those that followed them? Where can we read more about them?