

Jerald L. Ericksen

Dr. Jerry Ericksen was born in 1924 in Portland, Oregon, and he grew up on a farm. During the war he served in the Navy and returned to study mathematics at the University of Washington (B.S., 1947), at Oregon State College (M.A., 1949), and Indiana (Ph.D., Mathematics, 1951). He served as Mathematician and Solid State Physicist at the Naval Research Laboratory for six years. In 1957, he moved to the Johns Hopkins University where he was Professor of Theoretical Mechanics. During his 25 years at Johns Hopkins, he organized a renowned postdoctoral program; the list of fellows, together with the students who participated in the program, continue to be leaders in the mathematical sciences. For the past eight years he has served as Professor in the Department of Aerospace Engineering and Mechanics and in the School of Mathematics at the University of Minnesota.

Jerry's career has been characterized by creative insight on the use of mathematics to solve physical problems. He is one of the very few scientists to have a grasp of the whole of physical science, from the classical field theories of mechanics, thermodynamics and electromagnetism to the modern fields of statistical mechanics, and relativity. Additionally, he is an expert on differential equations, differential geometry and analysis. He was a founder, together with his postdoctoral fellow F. M. Leslie, of a dynamical theory of liquid crystals that accurately predicts the flow patterns and orientation in a flowing liquid crystal. A clue to his insightful use of mathematics in his early research is found in his treatment of what came to be known as "Ericksen's problem." Jerry posed the problem of finding all deformations that can be produced by surface forces in any isotropic incompressible elastic material (like rubber). He discovered four families of these universal deformations. A fifth family was discovered ten years later and a tiny possibility for an additional family remains open. In these early years, he also played a central role in elucidating the effects of normal stresses in non-Newtonian fluids.

Since coming to Minnesota, Jerry has not only made profound contributions in the areas of liquid crystals and phase transformations, but he has also given generously of his time in service to the University. He has figured prominently in attracting a bright young group of engineering scientists to the Department of Aerospace Engineering and Mechanics, and he organized, with Professor David Kinderlehrer, a remarkably influential program on Continuum Physics at the Institute for Mathematics and its Applications. Jerry has been honored several times for his research. He was an early Bingham Medalist as well as a Timoshenko Medalist and a Society of Engineering Medalist. In recent years, he has been awarded honorary doctorates from the National University of Ireland and from Heriot-Watt University.

We will miss both his penetrating insight as well as his tireless service to the AEM Department. He and Marion are avid naturalists and enjoy the ocean and lakes, and will reside on a lake in Oregon not far from the coast. In addition to tackling some long term research problems during retirement, Jerry will maintain a working relationship with the Group on Transitions and Defects in Ordered Materials at the University of Minnesota.