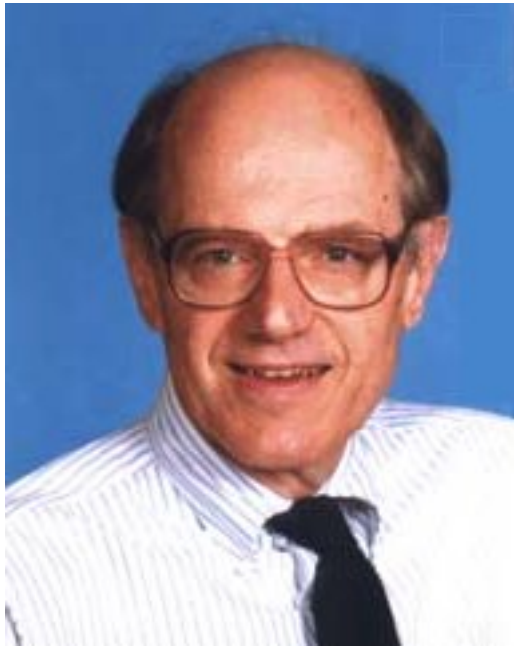
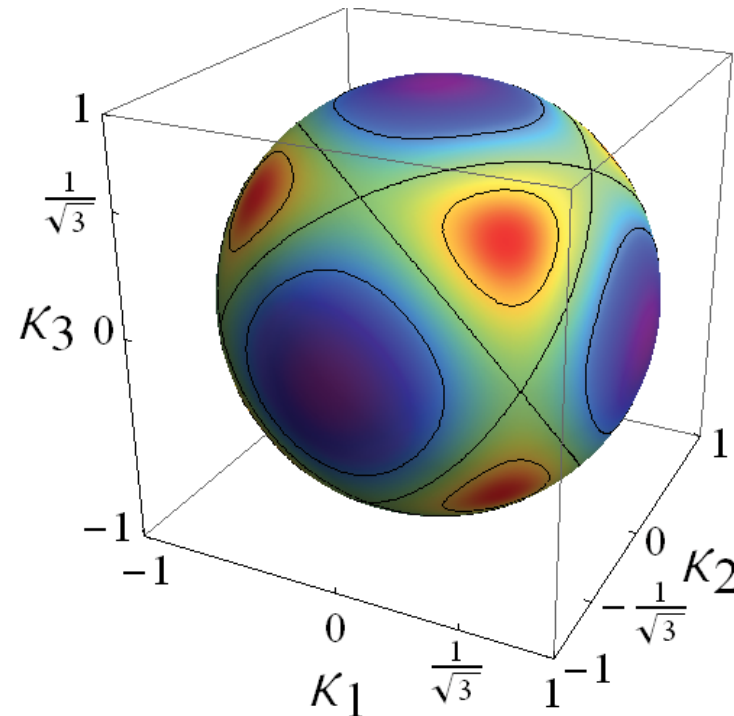


Polarization of Light and Classical Entanglement



Joseph H. Eberly

Andrew Carnegie Professor of Physics
Professor of Optics, U of Rochester
BS Physics, Penn State
PhD Physics, Stanford
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3:00 pm Monday, Oct 3, 2011
Sloan Auditorium, Goergen 101
Refreshments served

The talk will discuss a conceptual reformulation of the meaning of the degree of polarization of an optical field. The emphasis will be on entirely classical (non-quantum) aspects of light.

Polarization of Light and Classical Entanglement

Professor Joseph H. Eberly

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Abstract: There is an overlooked element of optics and optical imaging that has begun to catch up with advances in the generation, propagation, transmission, and storage of light. This is optical spin, i.e., light polarization. In striking contrast to the developments arising from research during the past 5 decades in coherent, quantum, nonlinear and statistical optics, the understanding of polarization is still largely grounded in the insights of Sir George Stokes from 150 years ago. But this is beginning to change. Both theoretical and practical considerations are pointing to the need for new treatments of polarization. The constraints inherent in gaussian beam physics are being discarded. Here we will focus on one corner of this on-going revolution, a conceptual reformulation of the meaning of the degree of polarization. This will illustrate some of the changes that will be coming, even though the emphasis will be on entirely classical (non-quantum) aspects of light.

Biography: Prof. Eberly received his B.S. in Physics from Penn State (1957) and his Ph.D. in Physics from Stanford University (1962). He joined the UR Physics and Astronomy faculty in 1967, where he is a member of the Quantum Optics research group. Since 1979 he has held an adjunct faculty position in the [Institute of Optics](#). He is presently the Andrew Carnegie Professor of Physics and Director of the [Rochester Theory Center](#).

Prof. Eberly is a Fellow of the American Physical Society and the Optical Society of America, has been Chair of the APS Division of Laser Science, and was the founding Editor of the journal Optics Express. He was President of the Optical Society of America (2007), and Chair of the OSA Presidential Advisory Committee (2009). He has served as a member of the APS Council 2003-2005, the AIP Governing Board 2003-2005, and as a member of the Advisory Boards of KITP (Santa Barbara), ITAMP (Harvard-Smithsonian) and the Physics Division of Lawrence Livermore National Laboratory. Professor Eberly has been selected for a JILA Visiting Fellowship (1979), a Senior Alexander von Humboldt Award (1984), and the Distinguished Alumnus Award of the Penn State College of Science. He has received the Smoluchowski Medal of the Physical Society of Poland (1987), the Charles Hard Townes Award of the Optical Society of America (1994), the Georgen Award for Creative Innovation in Undergraduate Teaching of the University of Rochester (2000), and the Frederick Ives Medal of OSA (2010). He is a Foreign Member of the Academy of Science of Poland.