

IQSE AMO QO Seminar Series

Tuesday, May 16th, 11:30 am ZOOM & IQSE
seminar room (MPHY 578)

Pizza will be served for IQSE members at 11:00 am. The talk will start around 11:30 am

Dr. Marlan Scully

(Texas A&M University)

Tools of Quantum Statistical Physics: the Good the Bad and the Ugly

ABOUT THE SPEAKER: Marlan O. Scully is a laser physics pioneer. His work includes the first quantum theory of the laser with Lamb, the first demonstrations of lasing without inversion, the first demonstration of ultraslow light in hot gases, and the use of quantum coherence to detect anthrax in real time. Furthermore Scully's work on quantum coherence and correlation effects has shed new light on the foundations of quantum mechanics, e.g., the quantum eraser. He has been elected to the National Academy of Sciences, American Academy of Arts and Sciences, Academia Europaea, and Max Planck Society; has numerous awards including the APS Schawlow prize, OSA Townes Award, IEEE Quantum Electronics Award, Franklin Institute's Elliott Cresson Medal, OSA Lomb Medal, and Humboldt Senior Faculty Prize. More recently he was named Harvard Loeb Lecturer, received an honorary doctorate from University of Ulm, and was awarded the OSA's DPG Hebert Walther Award.

EVENT DETAILS: The density matrix, e.g., the Wigner representation is the gold standard [1]. The Bohm trajectory approach can be badly misleading [2]. The quantum noise operator approach is useful but a bit "ad hoc" [3]. [1] Hillery, M.; O'Connell, R. F.; Scully, M. O.; Wigner, E. P., Distribution functions in physics: Fundamentals, Phys. Rep. 1984, 106, 121–167. [2] Englert, B., Scully, M., Süßmann, G., Walther, H., Surrealistic Bohm trajectories, Z. Naturforschung A 47, 1175–1186 (1992). [3] Scully, M. O. & Zubairy, M. S., Quantum Optics (Cambridge University Press, Cambridge, 1997).

ZOOM information:

<https://tamu.zoom.us/j/98156251523?pwd=QVdSdGxtL1UyY0g1L083SU5QR0QrUT09>

Meeting ID: 981 5625 1523

Passcode: 297578

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