MARLAN O. SCULLY

Texas A&M University and Princeton University
Director, Institute for Quantum Studies and
Texas Engineering Experiment Station
Distinguished Research Chair

EDUCATIONAL BACKGROUND:

Yale University	Ph.D. Physics	1966
Yale University	M.S. Physics	1963
Rensselaer Polytechnic Institute	Materials Science Program	1962
University of Wyoming/Casper College	B.S/A.S.. Engineering Physics	1961

ACADEMIC EMPLOYMENT HISTORY:

University	**Rank**	**Date**
Baylor University	Distinguished Research Academician	2011 - date
Princeton University	Professor	2005 - 2014
Princeton University	Visiting Professor (Chemistry)	2003 - 2005
Texas A&M University	Burgess Distinguished Professor	1996 - date
Texas A&M University	Professor	1992 - 1996
Max-Planck-Institut für Quantenoptik	Auswärtiges Wissenschaftliches	1980 - 2005
University of New Mexico	Distinguished Professor	1980 - 1992
University of Arizona	Professor	1969 - 1980
Mass. Inst. of Technology	Associate Professor	1969 - 1971
Mass. Inst. of Technology	Assistant Professor	1967 - 1969
Yale University	Instructor	1961 - 1962

SELECTED PROFESSIONAL AWARDS AND HONORS:

National Academy of Sciences
American Academy of Arts and Sciences
Max Planck Society
Academia Europaea
Loeb Lecturer (Harvard University)
C.N. Yang Professor (Chinese University of Hong Kong)
Honorary Doctorate (Ulm University)
Frederic Ives Medal/Jarus W. Quinn Endowment (OSA)
Herbert Walther Award (Deutsche Physikalische Gesellschaft/OSA)
Arthur L. Schawlow Prize (American Physical Society)
Sigma Xi - Distinguished Scientist Award
Quantum Electronics Award (IEEE)
Charles H. Townes Award (Optical Society of America)
Elliott Cresson Medal (The Franklin Institute)
Adolph Lomb Medal (Optical Society of America)
Alexander Von Humboldt Distinguished Faculty Award
Alfred P. Sloan Fellow
John S. Guggenheim Fellow
Fellow, American Association for the Advancement of Science
Fellow, Optical Society of America
Fellow, American Physical Society

SELECTED PUBLICATIONS (from over 700):

[1] Marlan O. Scully and Willis E. Lamb, Jr., "The Quantum Theory of an Optical Maser. I. General Theory," Phys. Rev. 159: 208-226, (1967); V. DeGiorgio and Marlan O. Scully, "Analogy between the Laser Threshold Region and a Second-Order Phase Transition," Phys. Rev. A 2: 1170-1177 (1970).

[2] M. O. Scully and K. Drühl, "Quantum Eraser: A Proposed Photon Correlation Experiment Concerning Observation and 'Delayed Choice' in Quantum Mechanics," Phys. Rev. A **25**, 2208 (1982).

[3] B.-G. Englert, J. Schwinger, and M. O. Scully, "Is Spin Coherence Like Humpty Dumpty? I. Simplified Treatment," Foundations of Physics **18**, 1045 (1988).

[4] J. Schwinger, M. O. Scully, and B.-G. Englert, "Is Spin Coherence Like Humpty-Dumpty? II. General Theory," Z. Phys. D **10**, 135 (1988).

[5] M. O. Scully, B.-G. Englert, and J. Schwinger, "Spin Coherence and Humpty-Dumpty. III. The Effects of Observation," Phys. Rev. A **40**, 1775 (1989).

[6] Marlan O. Scully, "Enhancement of the Index of Refraction via Quantum Coherence. Phys. Rev. Lett. 67: 1855-1858" (1991); A. S. Zibrov, M. D. Lukin, L. Hollberg, D. E. Nikonov, M. O. Scully, H. G. Robinson, and V. L. Velichansky, "Experimental Demonstration of Enhanced Index of Refraction via Quantum Coherence in Rb", Phys. Rev. Lett. 76: 3935-3938 (1996).

[7] M. O. Scully, G. M. Meyer and H. Walther, "Induced Emission due to Quantized Motion of Ultracold Atoms Passing through a Micromaser Cavity," Phys. Rev. Lett. 76: 4144-4147 (1996).

[8] M. O. Scully and H. Walther "An Operational Analysis of Quantum Eraser and Delayed Choice", Found. Phys. 28, 399-413 (1998)

[9] M. O. Scully, Condensation of *N* Bosons and the Laser Phase Transition Analogy, Phys. Rev. Lett. 82, 3927-3931 (1999) and V. V. Kocharovsky, Vl. V. Kocharovsky, and M. O. Scully, "Condensate Statistics in Interactin and Ideal Dilute Bose Gases, Phys. Rev. Lett. 84, 2306-2309 (2000).

[10] Y.H. Kim, R. Yu, S.P. Kulik, Y. Shih, and M. O. Scully, "Delayed `choice' quantum eraser", Phys. Rev. Lett. 84, 1 (2000)

[11] M. O. Scully, G. W. Kattawar, R. P. Lucht, T. Opatrny, H. Pilloff, A. Rebane, A. V. Sokolov, M. S. Zubairy, "FAST CARS: Engineering a laser spectroscopic technique for rapid identification of bacterial spores," Proceedings Of The National Academy Of Sciences Of The United States Of America, 99, 10994-11001 (2002); D. Pestov, R. K. Murawski, G. O. Ariunbold, X. Wang, M. Zhi, A. V. Sokolov, V. A. Sautenkov, Y. V. Rostovtsev, A. Dogariu, Y. Huang, and M. O. Scully, "Optimizing the Laser-Pulse Configuration for coherent Raman Spectroscopy," Science, 316, 265-268 (2007).

[12] MS Zubairy, GS Agarwal, MO Scully, "Quantum disentanglement eraser: A cavity QED implementation" Physical Review A **70** (1): Art. No. 012316 (2004).

[13] RJ Glauber, M Kleber, AK Patnaik, MO Scully, H Walther, "A simple study of photon correlations from Hanbury-Brown and Twiss to Einstein, Podolsky, Rosen and beyond" Journal of Physics B: Atomic, Molecular, and Optical Physics **38** S521-S534, (2005).

[14] M. O. Scully, E. S. Fry, C.H. R. Ooi, and Krzysztof Wódkiewicz, "Directed Spontaneous Emission from an Extended Ensemble of N Atoms: Timing is Everything," Phys. Rev. Lett. 96, 010501 (2006).

[15] M. O. Scully, "Collective Lamb Shift in Single Photon Dicke Superradiance", Physical Review Letters, 102, 143601 (2009).

[16] M. O. Scully, "Quantum Photocell: Using Quantum Coherence to Reduce Radiative Recombination and Increase Efficiency," Physical Review Letters, 104, 207701 (2010).

Textbooks:

[1] 1974 (Murray Sargent III, Marlan O. Scully and Willis E. Lamb, Jr.) Laser Physics. 432 pp. New York: Addison-Wesley Publishing Company.

[2] 1996 (Marlan O. Scully and M. Suhail. Zubairy) Quantum Optics, 630 pp. Cambridge: Cambridge University Press.

[3] 2007 (R. Scully and M. O. Scully) The Demon and the Quantum, 280 pp. :Wiley VCH.