

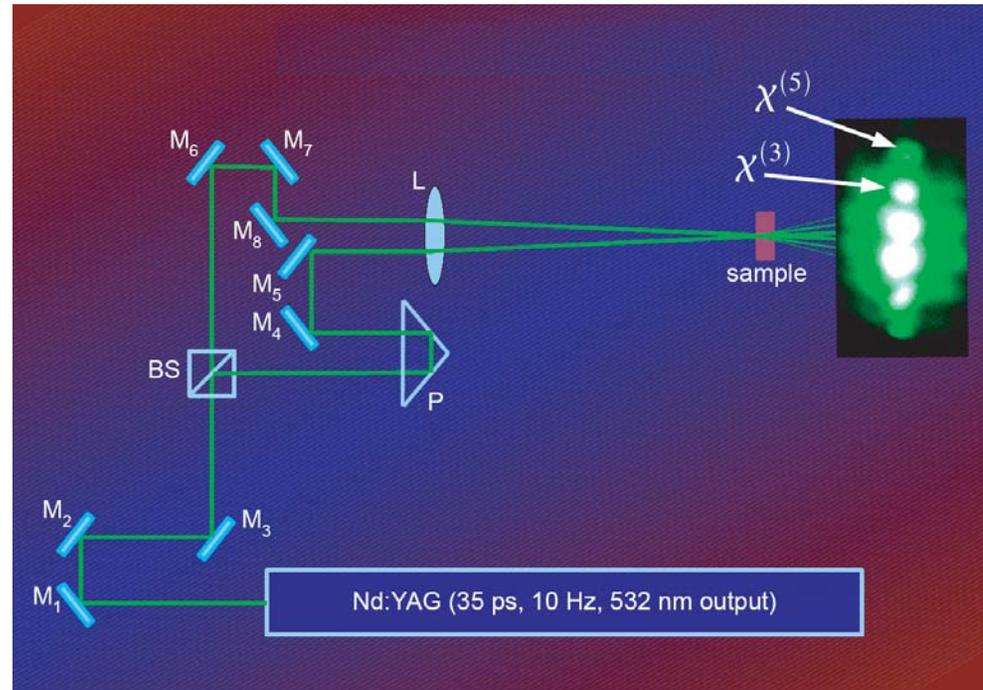
Quantum imaging: technology of the future?



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Refreshments provided

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Abstract

Image formation making use of quantum states of light allow dramatic new possibilities in the field of image science. In this contribution, we review some of the conceptual possibilities afforded by quantum imaging and describe some recent work that displays some of these features. In addition, we present some new experimental results on the role of coherence and indistinguishability in determining the properties of two-photon interference.

Biography

Robert W. Boyd was born in Buffalo, New York. He received the B.S. degree in physics from MIT and the Ph.D. degree in physics from the University of California at Berkeley. His Ph.D. thesis was supervised by Charles Townes and involves the use of nonlinear optical techniques in infrared detection for astronomy. Professor Boyd joined the faculty of the University of Rochester in 1977. He is currently the M. Parker Givens Professor of Optics and Professor of Physics. His research interests include studies of "slow" and "fast" light propagation, quantum imaging techniques, nonlinear optical interactions, studies of the nonlinear optical properties of materials, and the development of photonic devices including photonic biosensors. Professor Boyd has written two books, co-edited two anthologies, published over 300 research papers, and been awarded five patents. He is the 2009 recipient of the Willis E. Lamb Award for Laser Science and Quantum Optics. Prof. Boyd is a fellow of the American Physical Society (APS) and of the Optical Society of America (OSA). He is a past chair of the Division of Laser Science of APS and has been a member of the Board of Directors of OSA. He has also served as an APS representative and chair of the Joint Council on Quantum Electronics (it is joint among APS, OSA and IEEE/LEOS). Prof. Boyd has served as a member of the Board of Editors of Physical Review Letters and is currently a member of the Board of Reviewing Editors of Science Magazine.