

**The American Chapter of the Indian Physics Association Recognizes Patel,
Ashtekar and Gupta in 2007**

Jay Gupta



The 2007 ACIPA Outstanding Young Physicist Prize is awarded to Jay Gupta for "innovative research into the quantum properties of magnetism in nanostructures using a variety of techniques, including ultrafast optical spectroscopy and atomic-resolution microscopy"

Gupta is an Assistant Professor of Physics at the Ohio State University since 2004. He earned B.S. degrees cum laude in chemistry and physics at the University of Illinois, Urbana-Champaign, and Ph.D. in physics at the University of California, Santa Barbara in 2002. He held a postdoctoral position at the IBM Almaden Research Center in San Jose, CA, from 2002-2004.

Abhay Ashtekar



The 2007 ACIPA Distinguished Scholar Prize is awarded to Abhay Ashtekar for "fundamental contributions to gravitational physics, including introduction of the Ashtekar variables, which provide new insight into the problem of quantization of gravity."

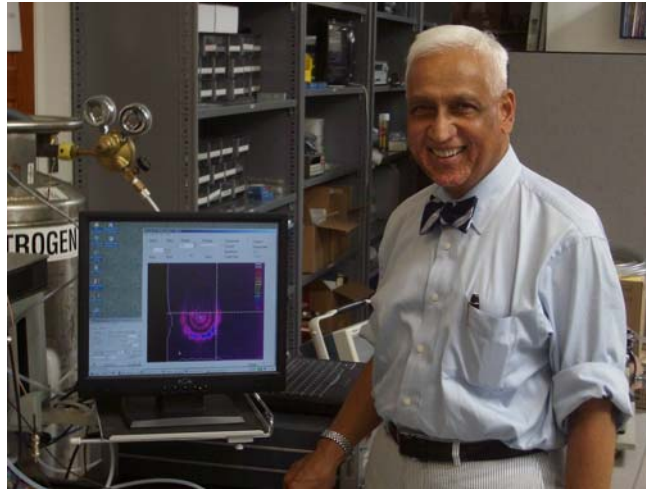
Ashtekar serves as the Director of the Institute of Gravitational Physics and Geometry and is the holder of the Eberly Chair in Physics at the Penn State University. Prior to joining the faculty at Penn State, Ashtekar held positions as professor, distinguished professor and the Erastus Franklin Holden Professor of Physics at Syracuse University (1984-1993), and professor and chair of gravitation at the University of Paris VI. He earned his doctoral degree at the University of Chicago in 1974 and his bachelor's degree with honors in physics and mathematics at the University of Bombay, India, in 1969. He is a Fellow of the American Physical Society, of the Alfred P. Sloan Foundation, and an Honorary Fellow of the Indian Academy of Sciences. He has been chief editor for physics for the journal "Advances in Mathematical and Theoretical Physics" since 1997 and a managing editor for "International Journal of Modern Physics D" since 1992. He was the Sir C.V. Raman Chair of the Indian Academy of Science from 2004-2005. He was awarded the senior Forschungspreis by the Alexander von Humboldt Foundation 2004, and received honorary doctorate at the Friedrich Schiller University, Jena, Germany, in 2005, the Einstein Year. Ashtekar has given more than 90 plenary lectures at international conferences.

Ashtekar is well known for a broad range contributions to the field of quantum gravity and generalizations of quantum mechanics, as well as to classical general relativity and the mathematical theory of black holes and gravitational waves. Especially noteworthy is his seminal 1986 reformulation of Einstein's equations, introducing what are now known as the Ashtekar variables, which has proved to be a fruitful approach to the problem of quantum gravity, fostering a new field of study. Other areas to which Ashtekar has made important contributions include: general relativity, quantum Riemannian geometry, black hole entropy in quantum gravity, quantum nature of the Big Bang, dynamical black

holes in general relativity, asymptotic structure of space-time, gravitational radiation, quantum field theory in curved space-times.

Ashtekar serves as the Director of the Institute of Gravitational Physics and Geometry and is the holder of the Eberly Chair in Physics at The Pennsylvania State University.

C. Kumar N. Patel



In 2007, ACIPA will present a Distinguished Lifetime Achievement Award to Kumar Patel for "fundamental contributions to quantum electronics and development of the carbon dioxide laser, which have had significant impact on industrial, scientific, medical, and defense applications."

Dr. Patel is the founder and CEO and Chairman of the Board of Pranalytica, a company based in Santa Monica, CA and specializing in developing technologies for very low-level detection of toxic gases of importance in environmental, industrial and homeland security and defense related applications. Concurrently, he is Professor of Physics and Astronomy and Chemistry and Electrical Engineering at UCLA. Pranalytica is a supplier of instrumentation for sub-ppb detection of many gases including ammonia, hydrogen fluoride, hydrogen chloride, sulfur dioxide, sulfur hexafluoride, 1,3-dimethyl formamide, acrolein and ethylene to environmental, petrochemical and semiconductor industry customers.

Dr. Patel was born in Baramati, India. He received a Bachelor of Engineering (B.E.) degree from the College of Engineering in Poona, India and the M.S. and Ph.D. in Electrical Engineering from Stanford University in 1959 and 1961, respectively. Dr. Patel joined Bell Laboratories in 1961, and subsequently became Executive Director of the Research, Materials Science, Engineering and Academic Affairs Division at AT&T Bell Laboratories in Murray Hill, New Jersey. He was appointed as Vice Chancellor for Research at the University of California, Los Angeles, in 1993.

Dr. Patel is the inventor of the high power carbon dioxide laser that has become the workhorse in many activities including industrial processing, surgery, and scientific applications including pollution detection. He is also the inventor of a number of other high power molecular gas lasers and the tunable spin flip Raman laser. He started and developed the field of tunable laser lased photoacoustic spectroscopy for sub-ppb detection of trace gases. He carried out the first measurements nitric oxide in the stratosphere that proved the potential role of nitric oxide in stratospheric ozone. He is an

expert in the area of very low level detection of trace gases using photoacoustic spectroscopy and he has shown that this technology is capable of providing instrumentation for very sensitive and highly reliable detection of many chemical warfare gases including nerve gases, e.g. Sarin that was used by the Aum Shinrikyo cult in the Tokyo subway terrorist attack. Very recently, Pranalytica has demonstrated highly sensitive detection of many explosives including liquid explosives and their precursors.

Dr. Patel's team at Pranalytica has provided the first analysis of correctly predicting the performance of chemical and biological weapon sensors that need to operate in realistic environments that are contaminated with a multitude of relatively harmless gases. This first analytic framework for estimates the performance of such sensors in terms of available sensitivity as a function of the sensor's false positive indications.

Dr. Patel is a member of the National Academy of Sciences and the National Academy of Engineering and has served on many its committees.

Dr. Patel has received many awards for his contributions to lasers and quantum optics including the highest awards from the Institute of Electrical and Electronic Engineers and the Optical Society of America. In 1996, President Bill Clinton awarded Dr. Patel the National Medal of Science, "[f]or his fundamental contributions to quantum electronics and invention of the carbon dioxide laser, which have had significant impact on industrial, scientific, medical, and defense applications."

Dr. Patel currently holds 40 U.S. patents relating to lasers and laser applications.

He is the past President of the American Physical Society in 1995 and of the Sigma Xi, the Scientific Research Society in 1994-1996.

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