

ICFO COLLOQUIUM GERD LEUCHS 'Interaction of light with a single atom in free space'

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March 01, 2019

Friday, March 1, 2019, 12:00. ICFO Auditorium

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Professor of physics at the Institute of Optics, Information and Photonics, University Erlangen-Nuremberg, director at the Max Planck Institute for the Science of Light, and Professor adjunct at the University of Ottawa$$Gerd Leuchs studied physics at the University of Cologne and holds a Ph.D. degree from the University of Munich. His PhD-thesis deals with the fine structure splitting of sodium Rydberg atoms. He received the Habilitation degree at the University of Munich on multiphoton processes in atoms. Gerd Leuchs is a full professor of physics at the Institute of Optics, Information and Photonics of the University Erlangen-Nuremberg. Since 2009 he is director at the Max Planck Institute for the Science of Light and since 2011 he is professor adjunct at the University of Ottawa. He is member of the

German Academy of Sciences Leopoldina and of the Russian Academy of Sciences. He holds an honorary doctoral degree from the Danish Technical University and honorary professorship of St. Petersburg State University. He won the 2005 Quantum Electronics and Optics Prize of the European Physical Society and the 2018 Herbert Walther prize awarded jointly by the Optical Society (OSA) and the Deutsche Physikalische Gesellschaft. In 2012 he obtained the Cross of Merit of the Federal Republic of Germany. His research spans the whole range from classical to quantum optics.

In this talk, experiments studying the light matter interaction at the level of one atom is discussed. A single atom in free space can have significant effects on a single light beam producing e.g. sizeable phase shifts of a coherent state. Regarding the dynamics, a future goal is demonstrating time reversibility of spontaneous emission underlining the unitary nature of the spontaneous emission process.

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