EuroSciCon

EuroSciCon Joint Event on

Laser Optics & Photonics and Atomic & Plasma Science

July 16-17, 2018
Prague, Czech Republic

Am J Compt Sci Inform Technol 2018, Volume 6
DOI: 10.21767/2349-3917-C1-003

SCATTERING PHOTONS FOR QUANTUM TECHNOLOGY

Almut Beige
University of Leeds, UK

In this talk, we have a closer look at different types of dynamics of photons with potential applications in quantum technology. The polarization states of photons are ideal carriers for quantum information, since photons travel fast and are relatively robust against decoherence. At the same time, when travelling in free space, it remains difficult to create interactions and to generate entanglement between them. Nevertheless, photons can exhibit a wide range of dynamics. For example, photons in optical cavities with instantaneous quantum feedback can exhibit non-linear and non-ergodic dynamics with potential applications in quantum metrology. Moreover, we study the scattering of photons through semi-transparent mirrors, like beam splitters and mirrors, with applications in quantum information processing. For example, we show that photons can induce long-range interactions between atoms on either side of a semi-transparent mirror for applications in quantum sensing.

a.beige@leeds.ac.uk