

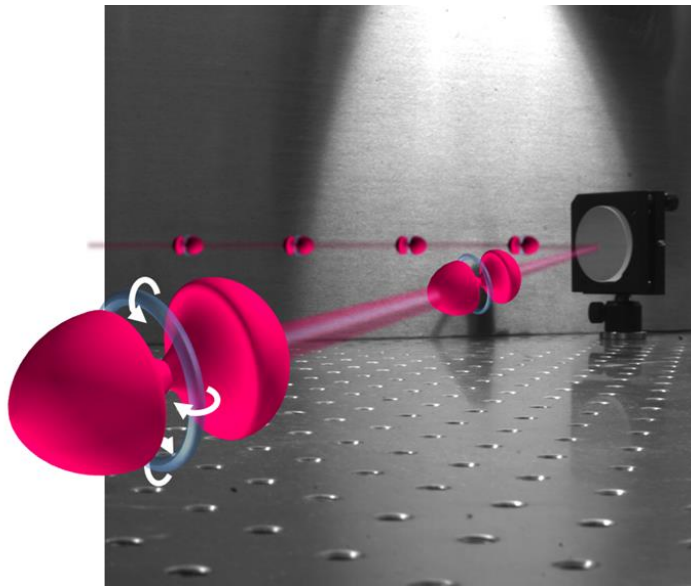
Physics Colloquia Series

Spatio-temporal Optical Vortices

Prof Howard Milchberg

University of Maryland

Friday, 10th March 2017 at 15:30



When an optical pulse propagating through a nonlinear medium exceeds a certain threshold power, it can focus itself and collapse, in theory, to a singularity. In practice, several physical mechanisms mitigate or arrest the catastrophic collapse and the pulse continues propagation as a filamentary structure. This scenario has played out in many nonlinear optics systems over decades: among them are air filamentation, relativistic self-focusing in plasmas, laser-material processing, and nonlinear generation of broadband light. Recently, University of Maryland showed that self-focusing collapse and collapse arrest is universally accompanied by the generation of robust topological structures: spatio-temporal optical vortices (STOVs). Prof. Milchberg will describe the experiments and simulations leading to this result.

Martin Wood Lecture Theatre, Clarendon Laboratory, Parks Road, Oxford OX1 3PU

Followed by tea/coffee in the Clarendon Laboratory Common room