Seminar

Friday, June 5, at $15^{\underline{00}}$

Institute of Physics, Blue Conference Hall

Remote Detection via Quantum Coherence

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ABSTRACT

There is nothing so practical as a good theory. As a case in point, the compelling need for standoff detection of hazardous gases and vapor indicators of explosives has motivated the development of remotely pumped, scheme(s) which produce radiation in the backward direction [1,2]. Moving from conceptualization to theoretical analysis and experimental verification, we demonstrate that high gain can be achieved in air. Backward air lasing provides possibilities for remote detection [3] as will be discussed.

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[1] A. Dogariu, M. Scully, *et al.*, "High-Gain Backward Lasing in Air", Science, 331(6016), 442–445 (2011).

[2] A. Svidzinsky, L. Yuan, and M. Scully, "Transient lasing without inversion", New J. Phys., 15, 053044 (2013).

[3] A. Zheltikov, *et al.*, "Coherent Raman Umklappscattering", Opt. Express, 20, 18784 (2012); LPL 8, 736–741 (2011).