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Remote Detection via Quantum Coherence¹

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There is nothing so practical as basic science. 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 [Science, 331(6016), 442-445 (2011); PRX, 3, 041001 (2013)]. Moving from conceptualization to theoretical analysis and experimental verification, we demonstrate that high gain can be achieved in air. Backward air lasing provides new possibilities for remote detection [Laser Phys. Lett., 8(10), 736-741 (2011)].

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