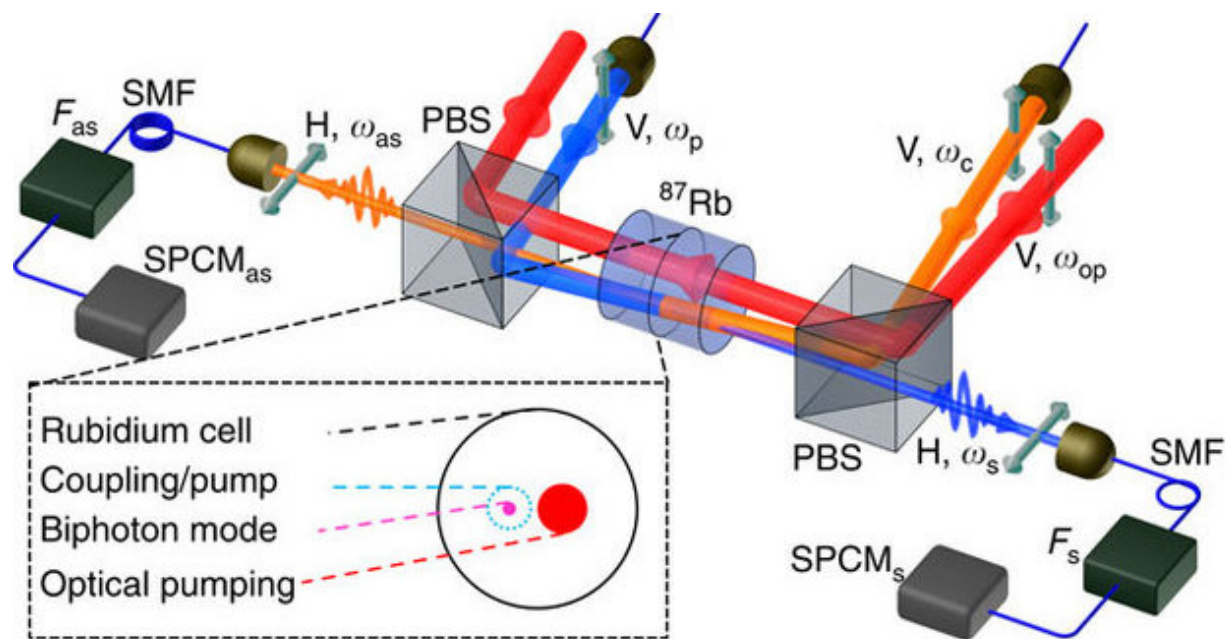


# Subnatural-linewidth biphotons generated from a Doppler-broadened hot atomic vapor cell

October 19 2016



Experimental configuration for generating narrowband entangled photon pairs from a hot Rb87 vapor cell. Credit: Department of Physics Division of Biomedical Engineering The Hong Kong University of Science and Technology

Entangled photon pairs, termed as biphotons, have been the benchmark tool for experimental quantum optics. The quantum-network protocols based on photon-atom interfaces have stimulated a great demand for

single photons with bandwidth comparable to or narrower than the atomic natural linewidth. In the past decade, laser-cooled atoms have often been used for producing such biphotons, but the apparatus is too large and complicated for engineering.

Led by Shengwang Du, Associate professor of physics at the Hong Kong University of Science and Technology (HKUST), a group of scientists were able to produce subnatural-linewidth (

Citation: Subnatural-linewidth biphotons generated from a Doppler-broadened hot atomic vapor cell (2016, October 19) retrieved 9 April 2024 from <https://phys.org/news/2016-10-subnatural-linewidth-biphotons-doppler-broadened-hot-atomic.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--