

## Quantum Physics

# Demonstration of Quadrature Squeezed Surface-Plasmons in a Gold Waveguide

Alexander Huck, Stephan Smolka, Peter Lodahl, Anders S. Soerensen, Alexandra Boltasseva, Jiri Janousek, Ulrik L. Andersen

(Submitted on 26 Jan 2009)

We report on the efficient generation, propagation, and re-emission of squeezed long-range surface-plasmon polaritons (SPPs) in a gold waveguide. Squeezed light is used to excite the non-classical SPPs and the re-emitted quantum state is fully quantum characterized by complete tomographic reconstruction of the density matrix. We find that the plasmon-assisted transmission of non-classical light in metallic waveguides can be described by a Hamiltonian analogue to a beam splitter. This result is explained theoretically.

Subjects: **Quantum Physics (quant-ph)**

Cite as: **arXiv:0901.3969v1 [quant-ph]**

## Submission history

From: Alexander Huck [[view email](#)]

[v1] Mon, 26 Jan 2009 11:00:44 GMT (206kb)

*[Which authors of this paper are endorsers?](#)*

## Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

**quant-ph**

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [0901](#)

## References & Citations

- [SLAC-SPIRES HEP](#)  
([refers to](#) | [cited by](#))
- [CiteBase](#)

## Bookmark([what is this?](#))

[CiteULike logo](#)

[Connotea logo](#)

[BibSonomy logo](#)

[Mendeley logo](#)

[Facebook logo](#)

[del.icio.us logo](#)

[Digg logo](#)

[Reddit logo](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).