

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**Evidence For Photon Pairing In The Photoassisted Shot Noise Of A Tunnel Junction** JEAN-CHARLES FORGUES, CHRISTIAN LUPIEN, BERTRAND REULET, Université de Sherbrooke — We report the observation of photon pairs in the photo-assisted shot noise of a tunnel junction in the quantum regime,  $\hbar\omega \gg k_B T$ . This was realised by measuring the correlation between the noise power generated by the junction at two different frequencies, 4.4 and 7.2 GHz, while driving the junction with an ac excitation of variable frequency. We observe clear correlations even when the mean photon number per measurement is smaller than one, a strong evidence for photons being emitted in pairs. These data are in good agreement with predictions based on the fourth cumulant of the current fluctuations generated by the junction.

Jean-Charles Forgues  
Université de Sherbrooke

Date submitted: 15 Nov 2013

Electronic form version 1.4