

Abstract Submitted  
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**Quantum Dot as High Frequency Noise Detector** EUGEN ONAC, FRANCK BALESTRO, UDO HARTMANN<sup>1</sup>, YULI NAZAROV, LEO KOUWENHOVEN, Kavli Institute of Nanoscience, TU Delft, The Netherlands — We present the experimental realization of a Quantum Dot (QD) as high-frequency noise detector. Current shot noise produced by a nearby Quantum Point Contact (QPC) induce photon-assisted tunneling for the electrons in QD. Thus fluctuations generated by the QPC lead to transport through orbital excited states of the quantum dot. This allows us to measure the QPC noise modulation when we change the number of opened channels. We also investigate the dependence of detector signal on the bias voltage across the QPC. We observe and explain the saturation and quantum features in the detector signal. The measurements are consistent with previous low-frequency experiments. In our case the detection frequency is determined by the QD orbital states spacing (60 respectively 140GHz).

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