

The Fitzpatrick Institute for Photonics

FIP Friday Breakfast & Poster Presentation

Cryogenic Amplifiers for a Superconducting Nanowire Single Photon Detector System

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The superconducting nanowire single photon detector (SNSPD) is a leading technology for quantum information science applications using photons, and they are finding increasing uses in photon-starved classical imaging applications. Critical detector characteristics, such as timing resolution (jitter), reset time and maximum count rate, are heavily influenced by the readout electronics that sense and amplify the photon detection signal. We describe a

readout circuit for SNSPDs using commercial off-the-shelf amplifiers operating at cryogenic temperatures. Our design demonstrates a 35 ps timing resolution and a maximum count rate of over 2×10^7 counts per second while maintaining < 3 mW power consumption per channel, making it suitable for a multichannel readout.

Poster Presenter:

Clinton Cahall, Graduate Student
from Dr. Jungsang Kim's Lab

Friday, October 13, 2017

FCIEMAS Atrium

10:00 am

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