Physics
AT QUEENS COLLEGE

Colloquium Notice

Rafael Ben-Michael

Amplification Technologies, Inc.

Discrete Amplification Photon Detector Technology For Very-Low Light Level Detection

The Discrete Amplification Photon Detection technology enables a unique photodetector, in which a combination of an avalanche and negative-feedback mechanisms produces ultra-sensitive, very high gain, low noise, very small pixel size photodetectors and photodetector arrays. The discrete amplification physical mechanism is not dependent on the ratio of electrons and holes ionization coefficients, thus it can be implemented in several compound semiconductor material systems, such as silicon, GaAs/AlGaAs, and InGaAs/InGaAsP/InP. This talk describes the operation principle of the technology, the advantages and tradeoffs, as well as how this technology compares to, and differs from, other competing high sensitivity approaches. As this technology can detect single photons, single-photon detection and characterization will be described, as well as other low-light level threshold detection methodologies used to characterize the Discrete Amplification photodetectors. Record setting sensitivity results at room temperature detection using 1.5 micron wavelength-sensitive detectors will be presented. In addition, the development status of the technology, development plans and challenges for the two main applications, night vision and ranging, will be described.

Monday
February 10, 2014
Starts at 12:15 PM
Coffee at 12:00 PM
Physics Conference Room, SB B326