

Photodetectors: introduction, its meteorological application in China, and current nanowire based work at Notre Dame

Xiangyang Li

Shanghai Institute of Technical Physics (SITP)

Chinese Academy of Science

Shanghai, 200083, China

Email: lixy@mail.sitp.ac.cn, xli8@nd.edu

Abstract

Photodetectors are critical parts in the information technology. It is the eyes of imaging instruments. This presentation begins with an overview of photodetectors, especially of the infrared detectors. Terms commonly used in the infrared detector field are explained. Detail discussions on Detectivity, Current Response, Noise and BLIP (?) are then presented, followed by some basic properties of mercury cadmium telluride (MCT) that is the most important material for long wavelength infrared high sensitivity detection. New trends in infrared technology, such as focal plan arrays (FPAs) and multi-color detectors, are also introduced. Example applications will be shown employing SITP MCT detectors in the Chinese meteorological satellites for weather forecasting. The final part of the presentation will be the current status of CdSe nanowire based photodetector research at Notre Dame, which I have participated in the past two months.

Bio

Xiangyang Li was born in Shangdong, China. He received the B. S. degree from the Liaocheng Normal University of China in 1991. He received the M. Eng. and Ph.D. degrees from the Shangdong University of China in 1995 and 1998, respectively. Since 1998 he has been with the Shanghai Institute of Technical Physics (SITP) in China beginning with a two-year postdoc appointment. He is currently the associate director of the No.10 Department, which produces the space borne infrared detectors in SITP. He is a member of the Chinese Optical society. He is also in charge of fabricating GaN based ultraviolet detectors and MCT infrared detectors in SITP.