Dear colleauges, we kinndly invite you to a lecture of

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Fabrication of large dual-polarized multichroic TES bolometer arrays for CMB measurements with the SPT-3G camera

Abstract: I will presents the procedures used at Argonne National Laboratory to fabricate large arrays of multichroic transition-edge sensor (TES) bolometers for cosmic microwave background (CMB) measurements. These detectors will be assembled into the focal plane for the SPT-3G camera, the third generation CMB camera to be installed in the South Pole Telescope. The complete SPT-3G camera will have approximately 2690 pixels, for a total of 16 140 TES bolometric detectors. Each pixel is comprised of a broad-band sinuous antenna coupled to a Nb microstrip line. In-line filters are used to define the different bands before the millimeterwavelength signal is fed to the respective Ti/Au TES bolometers. There are six TES bolometer detectors per pixel, which allow for measurements of three band-passes (95, 150 and 220 GHz) and two polarizations. The steps involved in the monolithic fabrication of these detector will be presented in detail. Patterns are defined using a combination of stepper and contact lithography. The misalignment between layers is kept below 200 nm. The overall fabrication involves a total of 16 processes, including reactive and magnetron sputtering, reactive ion etching, inductively coupled plasma etching and chemical etching.

Seminar will take place on **Tuesday 2/5/2017 at 10.00** in the seminar room of IEE (101).