

## **R. Dorn: Basic principles of photon detectors used in Astronomy**

This lecture will give a basic introduction to the physics of photon detectors used in Astronomy in the wavelength range of 300 nm up to 20 microns.

This will include the photoelectric effect, the absorption of photons in a semiconductor, dark current, cutoff wavelength, the photovoltaic effect and detector material properties as well differences between CCDs and CMOS/IR detectors.

Measurements of detector performance are usually determined by the use of the photon transfer function with its three different noise regimes.

I will explain the general method and additionally will give a basic introduction to the sampling techniques (uncorrelated, double correlated, fowler and up the ramp sampling) for IR/CMOS detectors.

I will show examples of detector systems build for the VLT instruments with an outlook to future detector systems/technologies for the ELT.