

Company Profile

PNDetector was founded in 2007, with an emphasis on producing innovative and efficient modern silicon radiation detectors for X-ray fluorescence, microanalysis, quality assurance and materials science. Our focus is on developing high resolution and ultrafast sensors suited to the individual needs of our customers.

We are fabricating in our own cleanroom facilities at the Siemens technology campus in Munich, Germany. The cleanroom (600 m², class 1 - 1000) is a sophisticated facility dedicated to the high quality fabrication of modern silicon radiation detectors. The cleanroom design is optimized to permit a continuous and efficient production flow starting from the raw material, 6-8 inch high purity silicon wafers, to the finalized product.

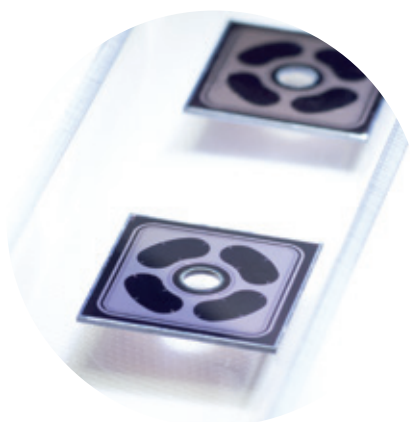
The emphasis in production and development is on Silicon Drift Detectors (SDDs) and Charged Coupled Devices (pnCCDs).

Silicon Drift Detectors



- ▶ Wide selection of chip sizes and detector housings
5, 10, 20, 30, 60, 100, 300, 600 mm²
- ▶ Chip-integrated FET
for optimum detector noise performance with total signal capacitances down to 50 fF
- ▶ Polysilicon technology
for ultralow leakage current values < 100 pA/cm², enabling high performance spectroscopy close to room temperature
- ▶ pnWindow
for excellent light element detection and optimum P/B ratio up to 20 000
- ▶ Energy resolution
down to 121 eV @ Mn-K, -30°C
- ▶ High count rates
up to 1 Mcps for single element SDDs and several Mcps with our Multi-Element SDDs
- ▶ Radiation hardness
> 10¹³ photons/cm²
- ▶ Integrated peltier element
for operation temperatures between -5°C and -30°C
no liquid cooling required

Multi-Element SDDs



- ▶ Large sensor area
up to 300 mm² with almost no dead area detectors up to 600 mm² active area
- ▶ Optimum collection efficiency
innovative geometry designs as the Rococo series provide huge solid angles up to 1.4 sr
- ▶ Homogenous response for all channels
due to the monolithic integration of the SDD cells
- ▶ Superior count rate capability
total count rates up to 7 Mcps can be achieved
- ▶ Excellent detector performance
energy resolution and peak-to-background ratio is comparable to single cell SDDs

pnCCD Color X-ray Camera



Ultra-fast full field imaging spectrometer

- ▶ simultaneous time-, energy- and position-resolved measurements
- ▶ high quality imaging of rough or heterogeneous samples without stage scanning
- ▶ quick identification of interesting sample areas by full field view
- ▶ ultra-fast readout of up to 1 000 fps in full frame mode
- ▶ area selection by using windowing and binning modes

Unmatched flexibility

- ▶ stand-alone benchtop system for ambient and vacuum conditions
- ▶ measurements without or with poly-capillary optics, enabling FF-XRF, TXRF, XRD, XANES, GEXAF, CT and transmission X-ray imaging with only one system
- ▶ analysis of the X-ray data cube with standard image processing software

Unique pnCCD sensor

- ▶ excellent spectroscopic performance
- ▶ long-term stability and radiation hardness
- ▶ high dynamic range and outstanding signal-to-noise ratio