Development of a Schottky CdTe-Medipix3RX Detector with Spatial and Energy Resolving Capabilities

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Hybrid Pixel Array Detectors (PAD)
- Negligible noise above threshold
- Large dynamic range
- Fast frame rate

HIZPAD2: EU project to develop high Z PAD
- **Medipix3RX** (55 μm or 110 μm) – inter-pixel communication
  - *Charge sharing correction* – allows use of thick sensors
  - *Color mode* - 8 windows of energy
- **Sensor:** CdTe semiconductor – Acrorad
  - Metal semiconductor contacts: *e-collection Schottky*

**Drawbacks:** polarization effects, limited areas

**Advantages:** Hard X-ray photon detection: 15 keV – 150 keV
Results presented on:

# Polarization studies
- **Evaluation of polarization effects**
- **Dependencies** – higher T, flux and time
- **Minimizing effect** – Refreshing HV sensor bias, temperature control

# Image quality
- **Good flat field image**
- **Synchrotron applications** – Large CeO2 diffraction pattern from stitching 21 individual images

# Medipix3RX Color Mode application
- *Rods of Niopam 150 mg Iodine solution + glandular phantom*
- *Iodine 33keV K-edge (absorption edge)*