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 μ m or 110 μ m) 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 qlandular phantom*
- Iodine 33keV K-edge (absorption edge)





