

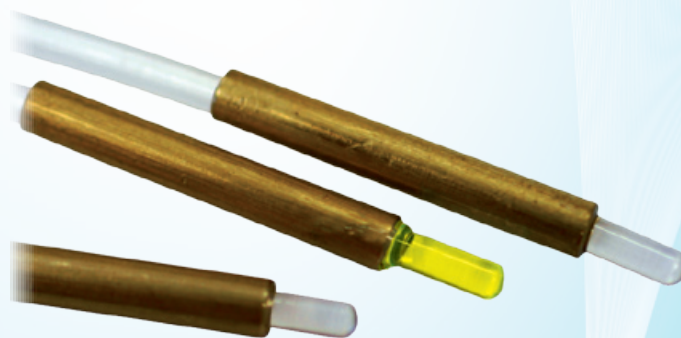
# Micro- Scintillators



- New scintillator shapes and smaller dimensions for detection in special applications
- Detection matrices with extra small pixel size
- Scintillator-optical fiber assemblies
- Suitable for coupling to a silicon diode detector

## Micro-Scintillator

- Minimum diameter 0.4 mm
- Minimum length 0.1 mm
- Cylindrical/conical shape
- Spherical ending
- YAG:Ce, YAP:Ce, CRY18 for electrons
- LuAG:Ce, CRY19 for gamma and X-ray



*Uncoated detection tips LuAG:Ce, CRY19*

## Optical Fiber coupled Scintillators

### OPTICAL FIBERS

#### MATERIAL

- Quartz (NA=0.22, excellent UV transmission, rigid)
- PMMA (NA=0.51, better light collection, bending)

#### OPTIONS

- Optional plastic protection and light-tightness
- Conductive coating (Al, ITO)

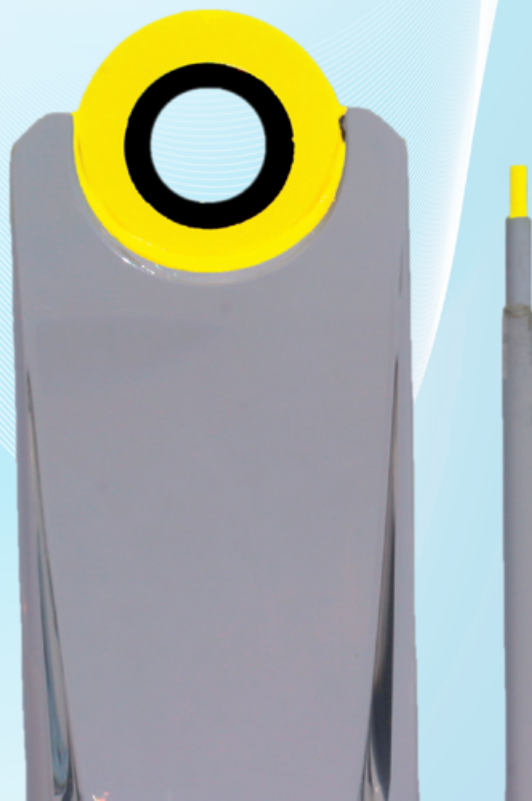
### APPLICATIONS

#### ELECTRON MICROSCOPY

- Ultra-compact BSE detector for space-limited measurement
- SE detectors (limited space, In-Lens type)
- CL detector (micro lens coupled)

#### MEDICAL

- In-vivo dosimeters
- Endoscope compatibility



*Classical annular (left) and fiber (right) BSE detector*



# Micro-Scintillators

## Micro-Scintillator Arrays

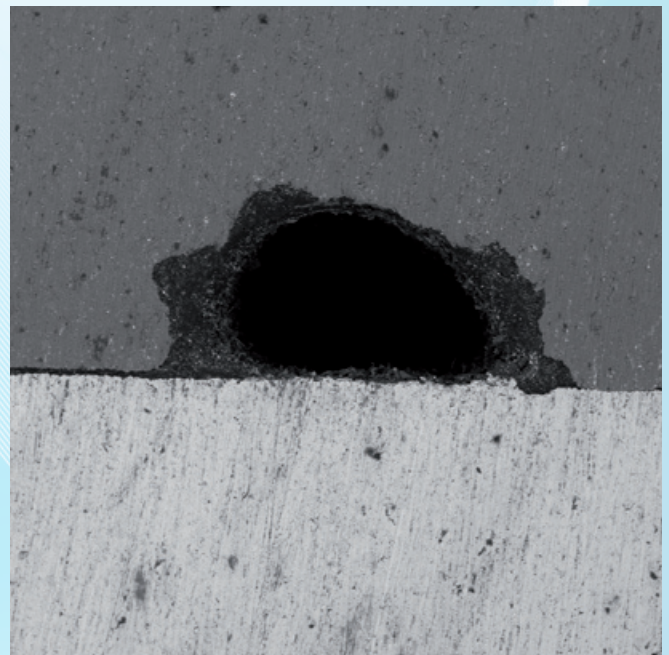
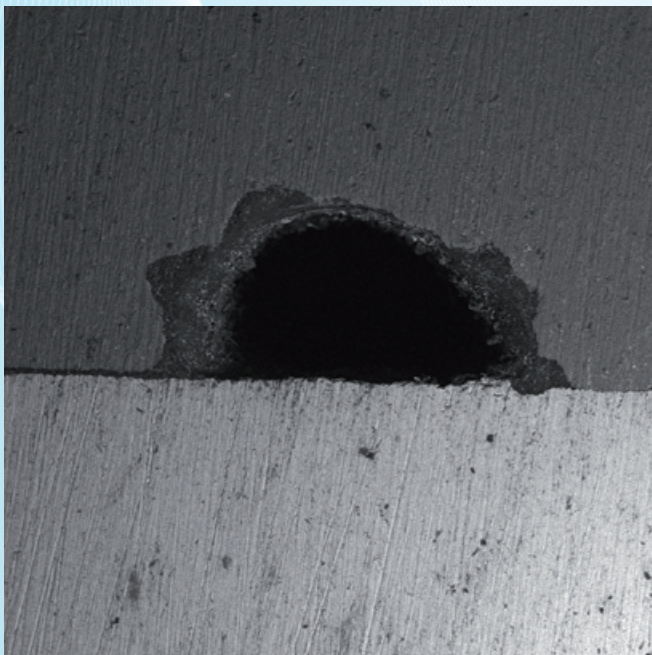


*50 pixel Micro-Scintillator linear array with 2.4x2.4x0.3 elements*

### DETECTION MATRICES

- Position sensitive detection
- PET, SPECT detectors
- Minimum pixel size 0.3x0.3 mm<sup>2</sup>

## Annular BSE versus Fiber BSE Detector



BSE images (grinded Copper and Aluminum with a hole) recorded with Annular (left) and Fiber (right) YAG:Ce BSE detectors (see image on front page). Same PE current (50 pA) and same scanning speed (4  $\mu$ s/pxl) at 15 kV. Asymmetrically placed Fiber detector adds topography contrast. Dimensions: Annular detector  $\varnothing$ 15/6x2.5, Fiber detector  $\varnothing$ 1x3.