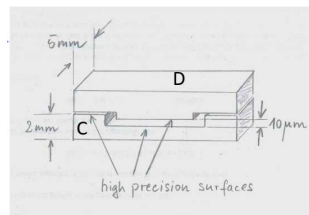


# Emittance Diagnostics

## X-Ray Optics (Pinhole)

### Target Manufacturing

- reminder
  - pinhole machining methods
    - classical „sandwich“ design  
unprecise, large PSF contribution
    - LIGA technique  
achievable absorber thickness too thin
    - laser drilling  
achievable absorber thickness too thin
    - „CD shaped“ design  
in use at ESRF-EBS, material: WC

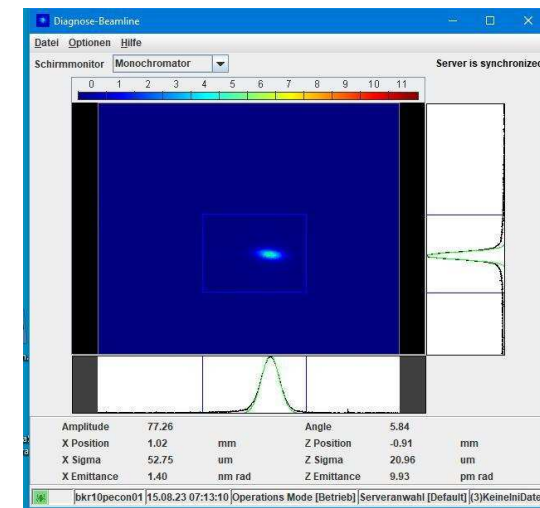
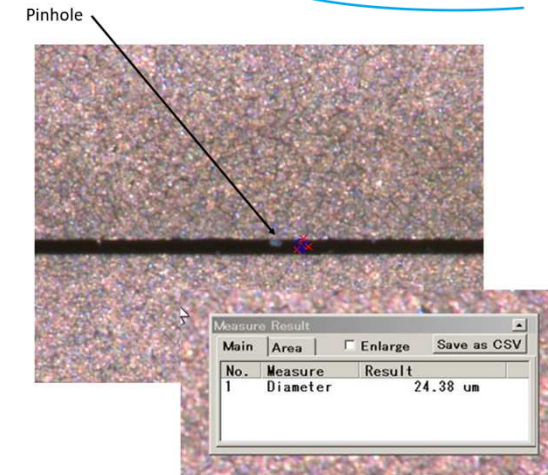


courtesy:  
F. Ewald (ESRF)

- PETRA pinhole
  - based on CD-shape
  - material: Densimet®
    - composition > 90% W + Ni, Cu
    - better machinability compared to pure W
  - installed in PETRA III diagnostics beamline in summer shutdown
- experience with new setup
  - PSF not yet measured
    - much smaller than for previous setup



target manufacturing  
process for PETRA IV



# Emittance Diagnostics

## Beamline Design

### Status

- reminder
  - 2 X-ray diagnostic beamlines
  - both with pinhole imaging and Fresnel diffractometry
    - detector/monochromator in optics hutch (out of tunnel)
  - optics hutch not available at the beginning (1-2 years)
    - no Fresnel diffractometry

- present situation
  - so far no information about beamline elements (photon beamshuter, fast valves, ...), necessary for combined beamline, available
  - full potential of combined beamline can be achieved only during PETRA IV operational phase
  - manpower in WP2.05 to continue this project not available before sometime in 2024

