



Neutron Studies of SiC_f/SiC composite materials



Fareeha Hameed



H. Tatlisu, N. Kardjilov, H. Rauch

SiC_f/SiC

- Composite materials like SiC_f/SiC relevant to fission/fusion reactors
- NT enables a visualization of the internal structure and pore distribution
- Determination of pore size and their distribution very important
- Stability and reliability very important

Scintillator: LiF-ZnS

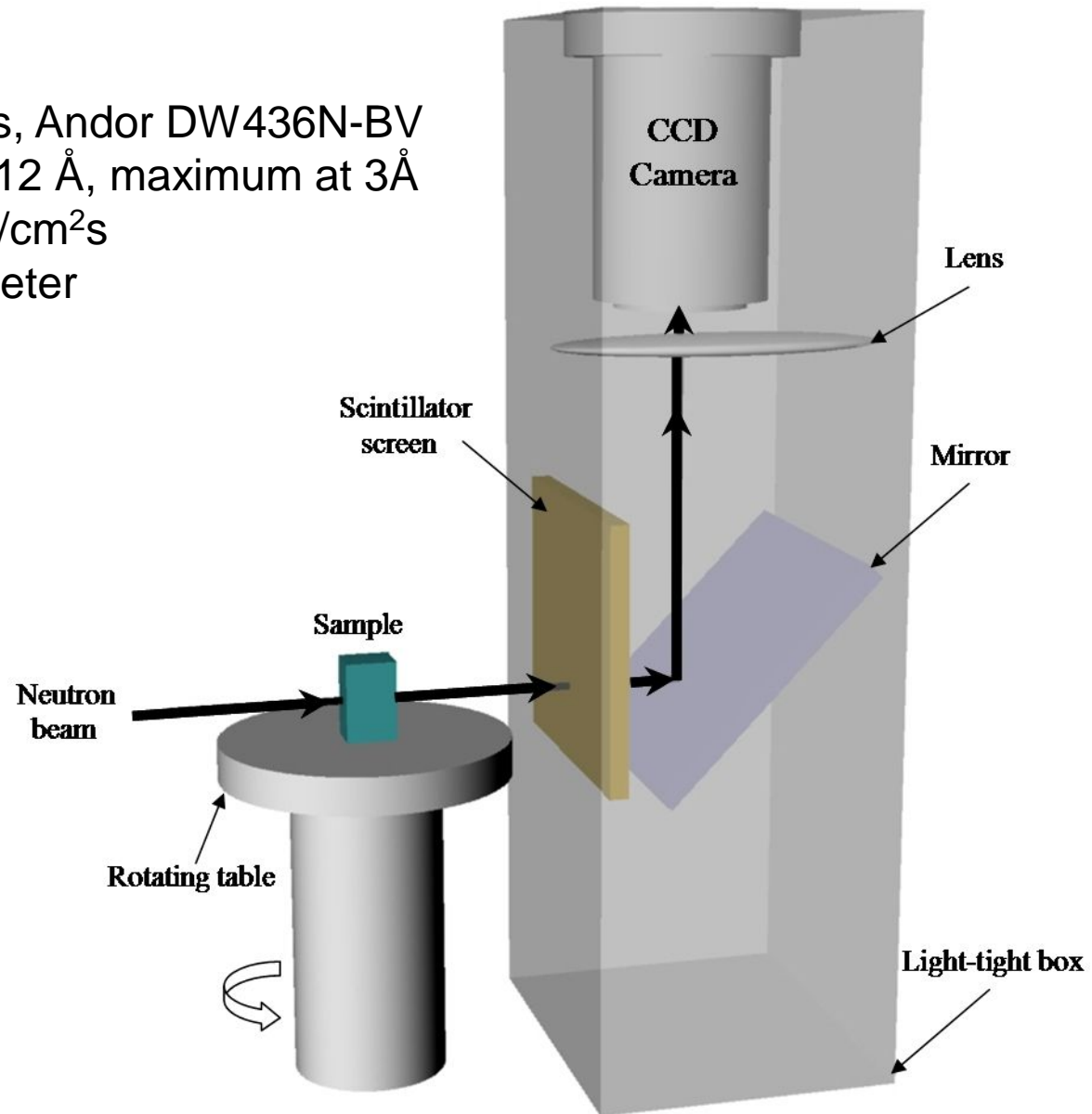
CCD: 2048 x 2048 pixels, Andor DW436N-BV

Neutron wavelength: 2 -12 Å, maximum at 3Å

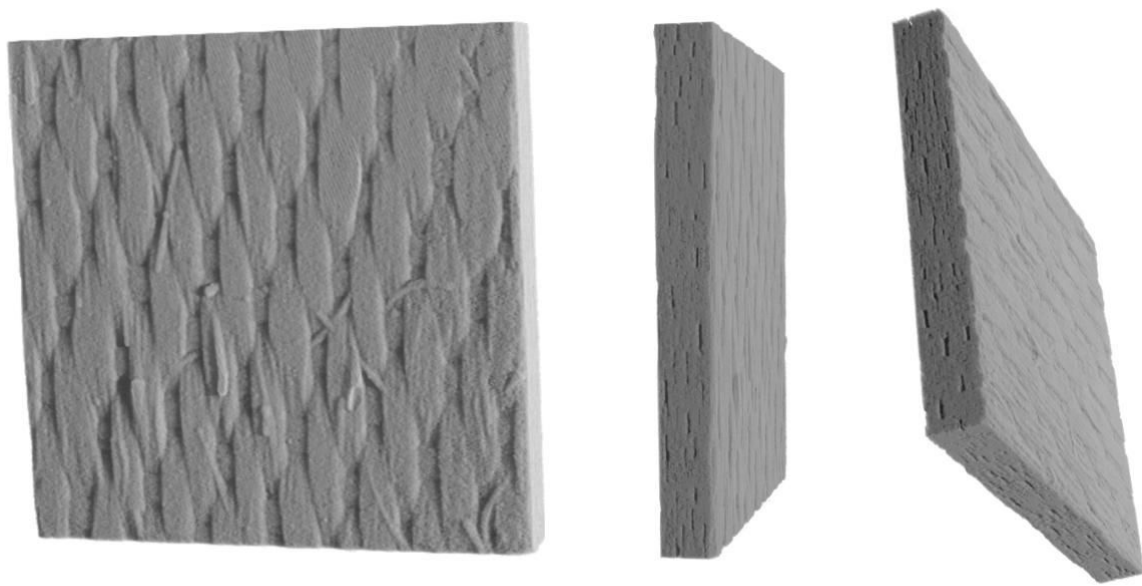
Neutron flux: 2.4×10^7 n/cm²s

Resolution: 200 micro meter

L/D ratio: 200

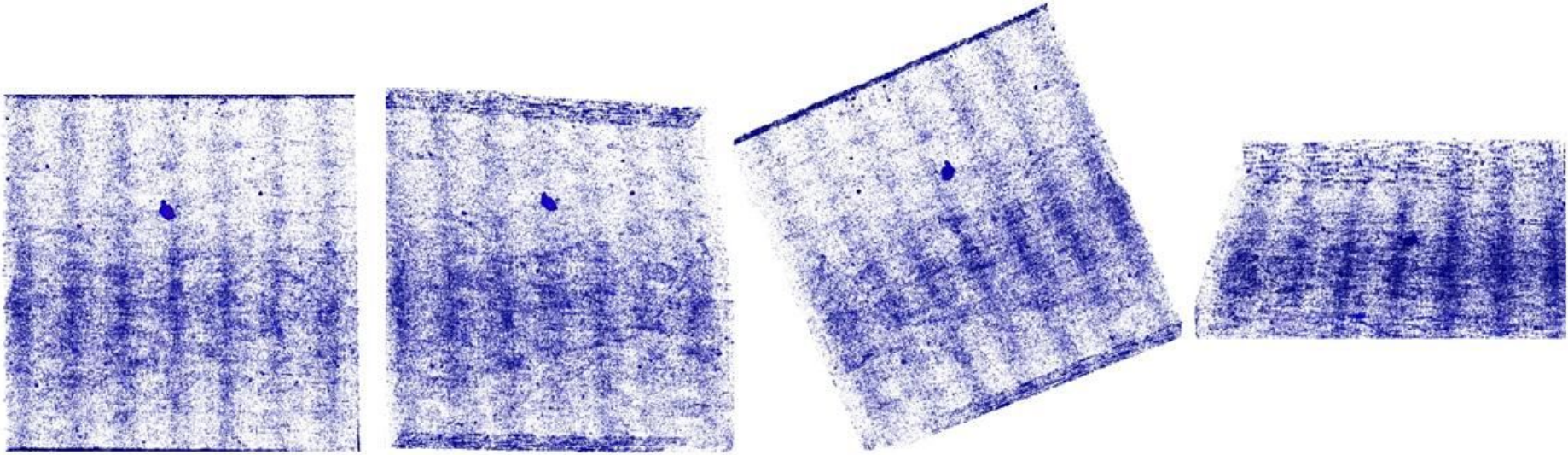


Study of SiC_f/SiC composite by neutron imaging



a) Orientation of fiber bundles

b) Pores visible from the side



A higher accumulation of the porosity was observed in the middle of the sample

Conclusions and Outlook

- Neutron as a probe in material science and engineering
- Non destructive visualization of the internal structure of the samples
- Three dimensional analysis
- Pore distribution
- Detection of inhomogeneities
- Qualitative and quantitative analysis

- Radiation damage studies
 - Experimental
 - Simulation



Thank You