Materials World Network:
Multi-Scale Study of Chemical Vapor Infiltrated Carbon/Carbon Composites

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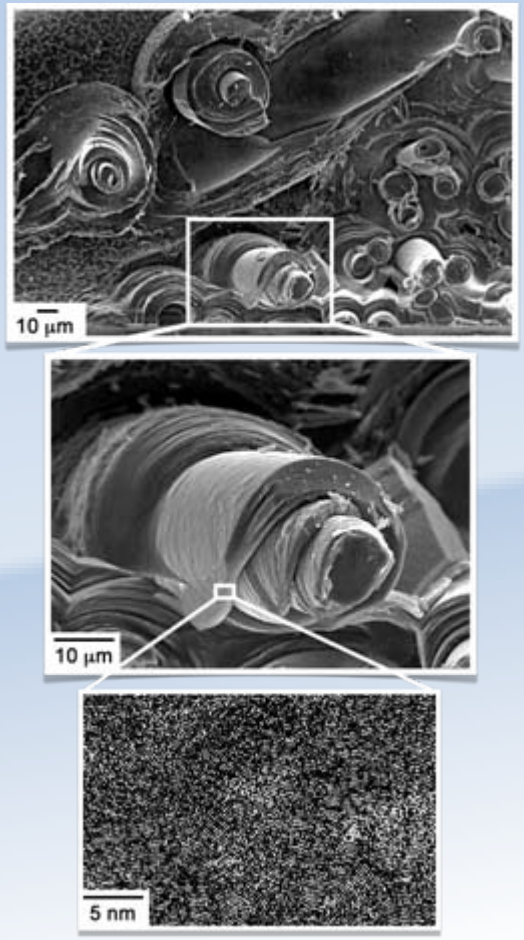
Chemical Vapor Infiltration (CVI) Studies:
- *Processing parameters (temperature, pressure, residence time)*
- *Choice of precursor gas (CH_4, C_2H_5OH)*
- *Various preform architectures*

Microstructure characterization:
- *Transmission electron microscopy (TEM)*
- *Scanning electron microscopy (SEM)*
- *Atomic force microscopy (AFM)*
- *X-ray computed microtomography (μCT)*
- *Polarized light microscopy (PLM)*

Mechanical testing:
- *Nanoindentation*
- *Microhardness*
- *Ultrasound*
- *Macroscopic tests*

Numerical and analytical modeling:
- *Submicron homogenization (PyC)*
- *Micromechanical modeling (Fiber + PyC)*
- *Mesoscale modeling (Fiber + PyC + pores)*
- *Stress concentration and fracture analysis by FEA and analytically*



SEM and TEM images of C/C composite