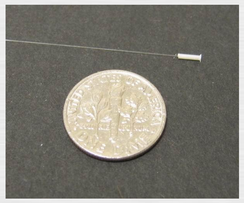
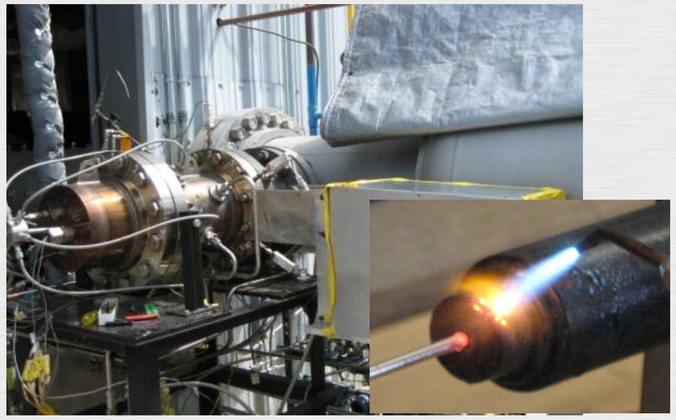
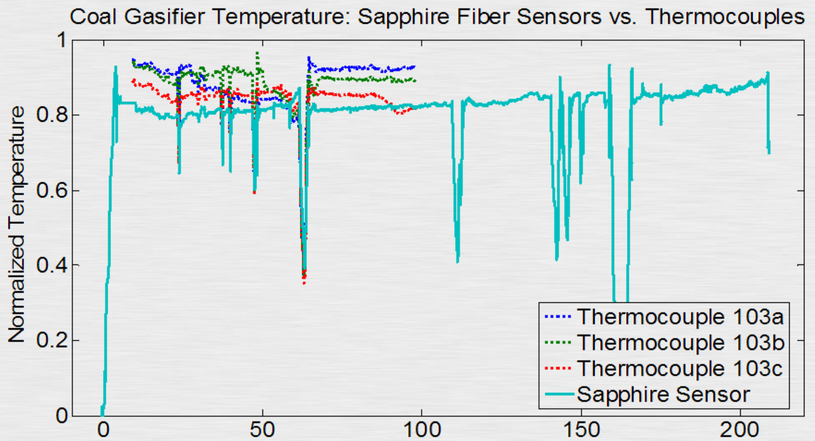
Sensing in Harsh Environments

Single Point Sapphire Temperature Sensor
Tested at Full Scale Gasifier
Temperatures ranging from 1000 °C – 1500 °C
(Virginia Tech CPT)

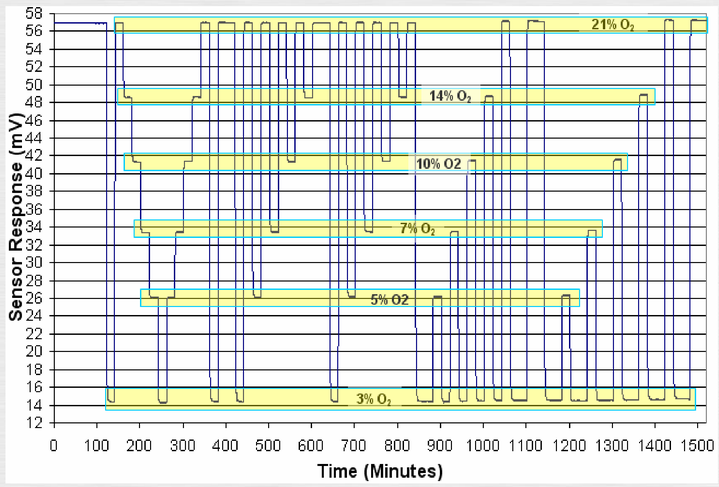




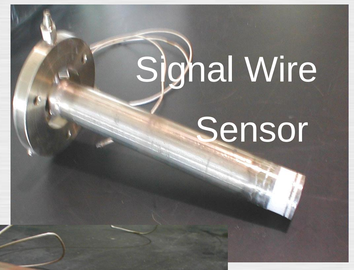
Silicon Carbide Optically Based Temperature Sensor
Turbine Combustor Test
Up to 1200 °C
(Nuonics and UCF)

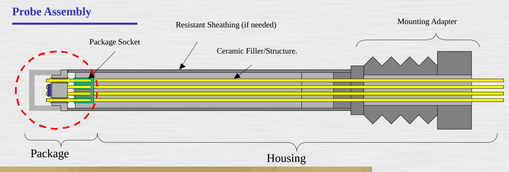


Major Challenge for New Suite of Sensors
Testing in High Temperature,
Mixed Gas Environments with
Significant Thermal Shock and Vibration



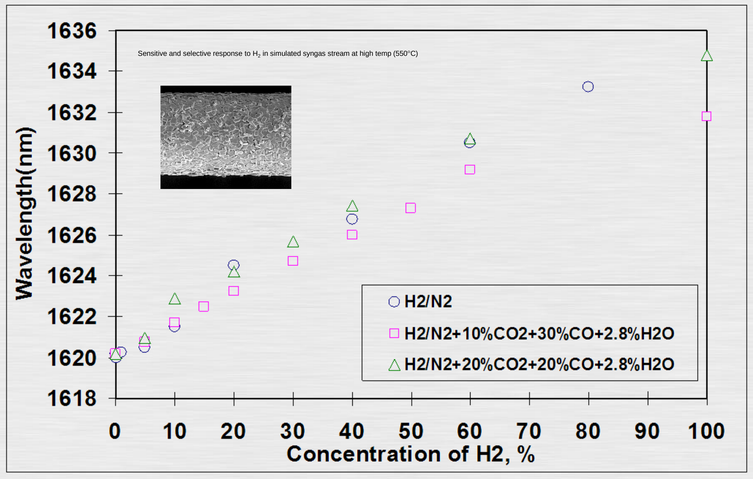
NETL's Flashback Sensor
Tested in NETL's Combustion Rig
Flame Temperatures exceeding 1000 °C



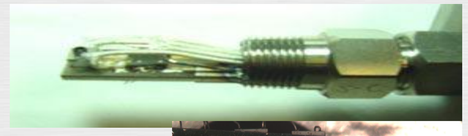


SiCN Micro Sensor for High Temperature Turbine Environments
Testing in NETL's Aerothermal Rig
temperatures exceeding 1000 °C
(Sporian MicroSystems)

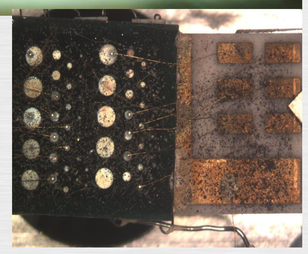
High Temperature Fiber Gas Sensor
Tested in Simulated Synthesis Gas
at 550 °C Sensing H_2 and CO
(NMT, ASU, MST, UC)



Internal Reference Oxygen Sensor up to
600 °C Operation
(Ohio State University)



H_2 Pt/SiC Sensor
Tested Sulfur SynGas near
500 °C in NETL's
Synthesis Gas System
(Michigan State University)



Advanced Research, Coal Utilization Science