

# Failure Stress and Apparent Elastic Modulus of Diesel Particulate Filter Ceramics

**Andrew A. Wereszczak, Michael J. Lance,  
Ethan E. Fox, and Mattison K. Ferber**

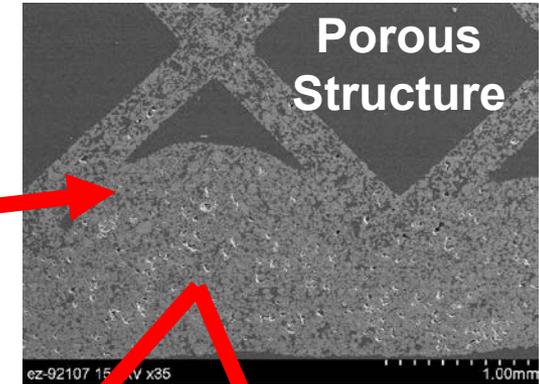
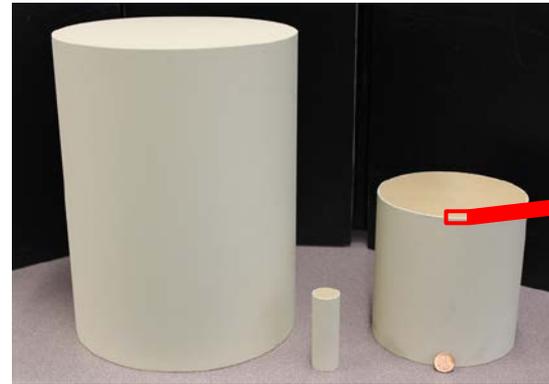
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**Poster P-15**

**Research sponsored by the Propulsion Materials Program, DOE Office of Vehicle Technologies,  
under contract DE-AC-00OR22725 with UT-Battelle, LLC.**

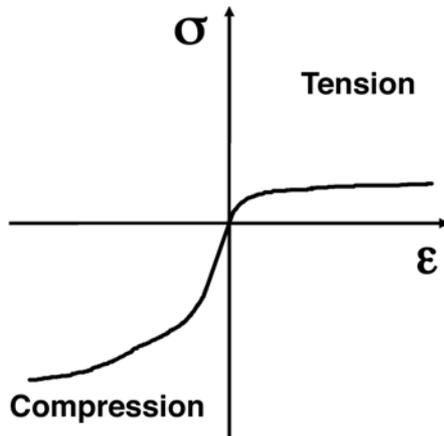
# DPF Elastic Modulus and Service Stress Are Likely Much Lower Than Previously Thought...

- Design and reliability analyses need:
  - Material strength
  - Stress state
- Stress-strain relationship
- Stress-strain asymmetry
- Focus on tension
- Using three new test specimens, we have found:
  - Much lower elastic modulus
  - Low stresses



Compression

Tension



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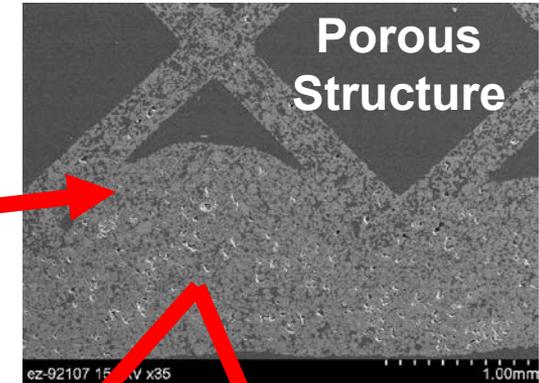
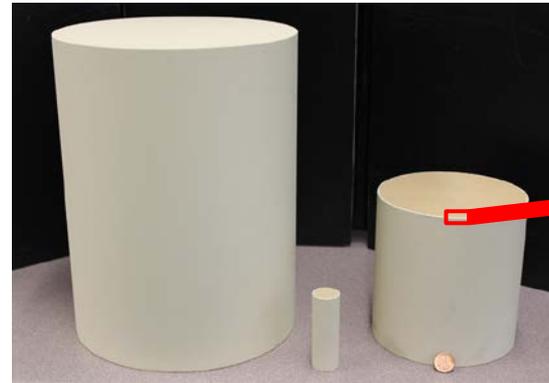
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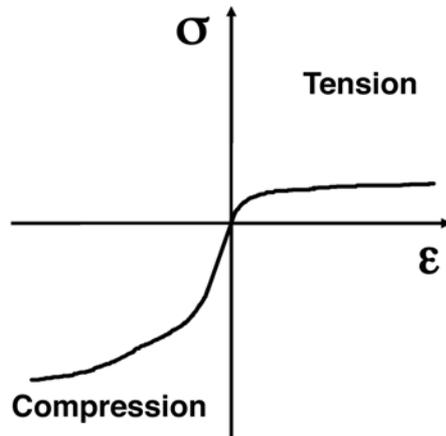
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