POSTER NO. 4

Design and Implementation of Silicon Nitride Valves for Heavy Duty Diesel Engines

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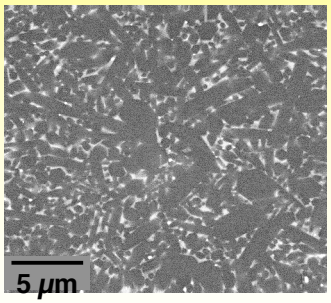
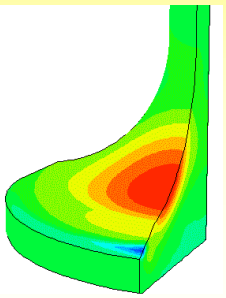
21CTP Technical Goal: **Develop and Demonstrate an Emission Compliant Engine System for Class 7-8 Highway Trucks that Improves the Engine Efficiency from ~42% today to 50% by 2010**

Current Program Goal: **Evaluate prospective advanced lightweight valve materials (i.e., Si_3N_4 and TiAl) and determine feasibility of implementation into a heavy duty diesel application**

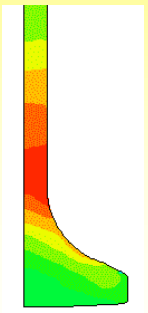
Collaboratively team efforts of industry and national lab carried out from material database generation, component design, life prediction, prototype bench rig test, and engine test. Evaluate the engine performance, valve components, turbo wheel, and fuel injection system

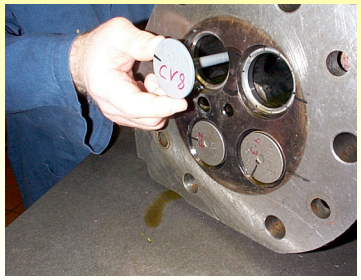


KICC SN235



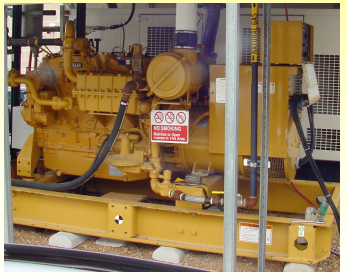
Ceramic valve design





Bench rig test

Si_3N_4, TiAl, SS



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