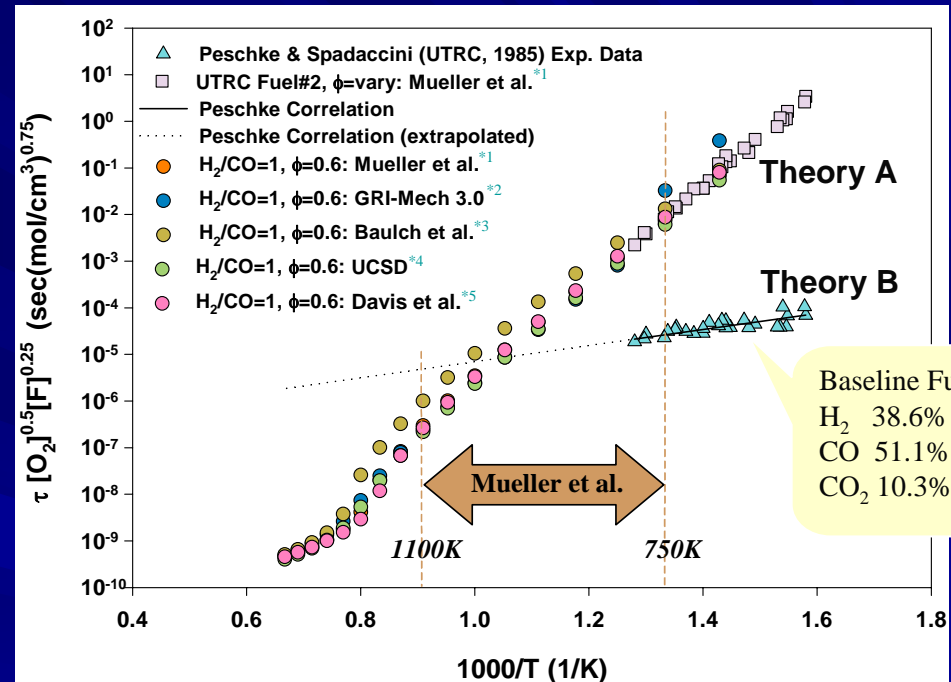


# Predicting Ignition Delay for Gas Turbine Fuel Flexibility

UC Irvine

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## Commercial Premixer



<sup>\*1</sup> 1999, <sup>\*2</sup> 1999, <sup>\*3</sup> 1996, <sup>\*4</sup> 2003, <sup>\*5</sup> 2004

- Low emission combustion systems have been carefully optimized for natural gas
- Future fuel diversity (including H<sub>2</sub> containing fuels) may generate auto-ignition damage
- Existing theories vary in predicting propensity for auto-ignition damage
  - Theory A vs Theory B shows factor of 100 difference—which is right?
- UC Irvine improved and validated design tools for ignition delay allow designers to evaluate the risk for auto-ignition in advanced combustion systems with future fuels
- Models are available to engine OEM's to shorten design cycle time and save \$\$