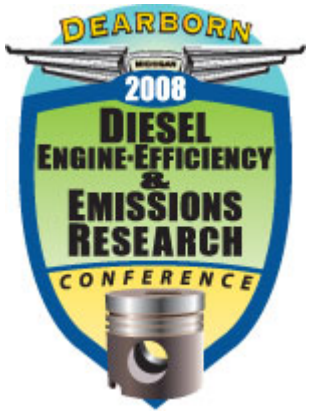

Poster P-14

Numerical investigation of advanced compressor technologies

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CONCEPTS NREC

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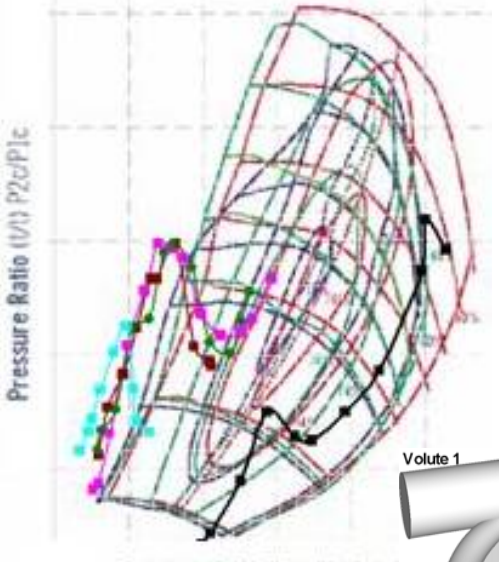
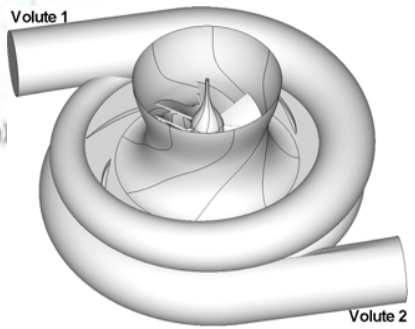
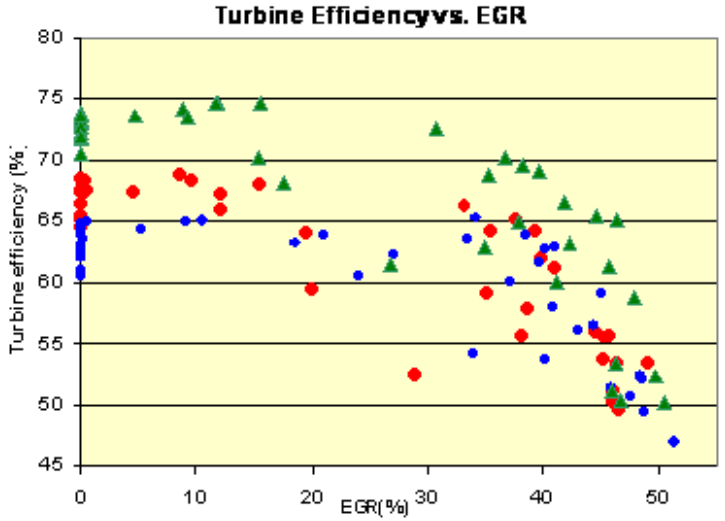
Project summary

Purpose of work: Explore advanced boost technologies to support clean diesel combustion, such as HCCI/LTC applications

- Heavy cooled EGR is needed for diesel HCCI/LTC
- Heavy EGR is accompanied by loss of efficiencies in both compressor and turbine
- Heavy EGR and low airflow through compressor (for high pressure EGR) pushes operation point near/cross compressor surge, esp. during tip-out
- Low oxygen content in the intake and poor turbo efficiency compromise diesel fuel economy and transient response







Technical Challenges

For diesel HCCI, LTC:

Poor turbo efficiencies and surge

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