Poster location: P13

An adaptive multi-grid chemistry (AMC) model for efficient simulation of HCCI and DI engine combustion

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Summary of the study

Objective: Develop an efficient chemistry model for simulation of HCCI and DI engine combustion within the KIVA3v2 framework

Approach: Use an adaptive multi-grid technique to group thermodynamically-similar cells in order to reduce the calling frequency to the chemistry solver

For HCCI

Laser beam traverses
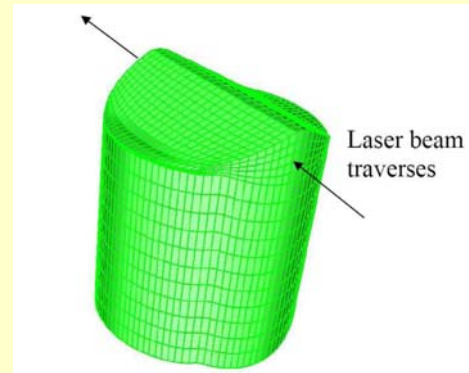
Compare with FTIR measurement

Comp. time 50 hrs → 5 hrs

For DI

Soot   NOx

Comp. time 40 hrs

↓

14.5 hrs

UHC   CO

laser path

Cyl. avg.