LOGEapi

Our state-of-the-art collection of chemistry solver APIs to boost prediction and computational performance of your 3rd party Computational Fluid Dynamics (CFD) and 1-D solvers.

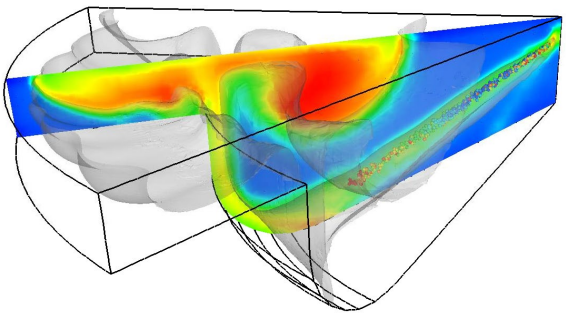
LOGEapi is a collection of high performance chemistry solver Application Programming Interfaces (APIs) that can be coupled with any third party software that provide user coding functionality. LOGEapi features combustion models which offer shorter computational time and higher precision than those used in traditional CFD and 1-D codes. The higher precision is achieved by the use of advanced chemical mechanism specifically developed for engine applications. The higher computational efficiency is obtained by introducing our Combustion Progress Variable (CPV) approach which is a tabulated chemistry based Well Stirred Reactor (WSR) model.

LOGEapi for 3-D CFD applications includes interfaces between LOGE-CPV model and:

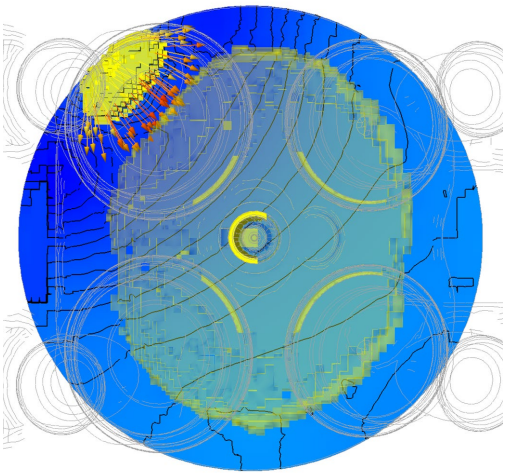
- CONVERGE v. 2.2.0_030416, 2.2.0_04216
- CONVERGE v. 2.3.15 and 2.3.17, 2.3.25
- CONVERGE v. 2.4.16

When running in coupled mode, the standard CONVERGE online chemistry solver (SAGE) is replaced by the LOGE-CPV model. The required simulation time can be up to hundred times faster than with SAGE solver.

LOGEapi for CONVERGE is applicable to both Diesel and Gasoline engine simulations.



Temperature contours and stochiometry isosurface for a DI-Diesel engine sector simulation.



High temperature iso-surfaces, velocity vectors and pressure isolines for a knocking SI engine simulation.

LOGEapi for 1-D applications includes various coupling solutions with GT-Power (v. 2017 and v.2018) such as:

- Predictive knock modelling in the unburned zone using LOGE-CPV or LOGE-Online chemistry solvers (via the EngCylChemGas template)
- Predictive in-cylinder combustion modelling between IVC and EVO using the LOGE-SRM approach in both Diesel and Gasoline engine simulations (via the EngCylExtMod template)

Recent publication

Netzer, C. et al. *Three-dimensional computational fluid dynamics engine knock prediction and evaluation based on detailed chemistry and detonation theory*, International J of Engine Research, Volume: 19 (1) 33-44, 2018.

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