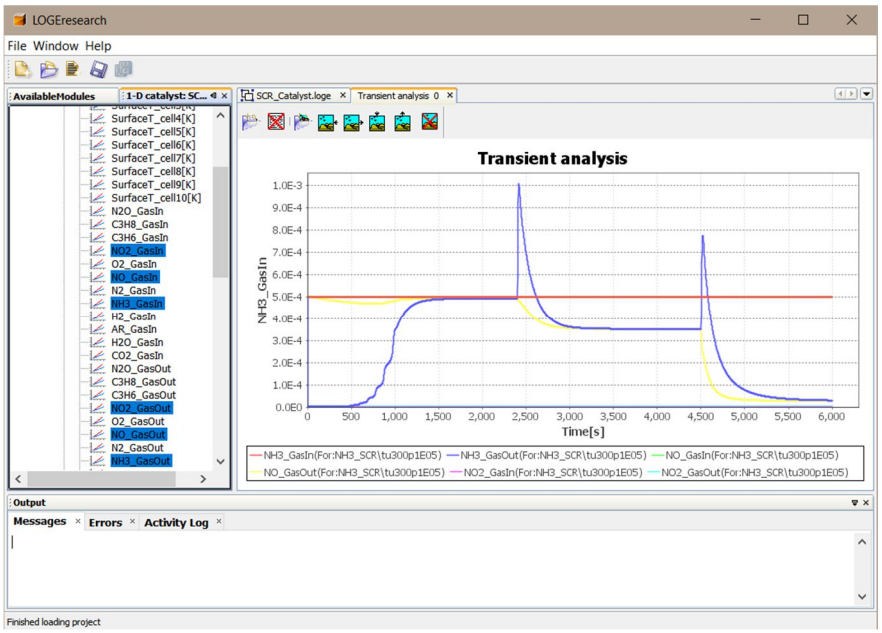
LOGEresearch

The ultimate simulation tool to investigate reactive flows using complex chemical kinetics.

LOGEresearch performs combustion simulations using detailed chemical kinetics for a wide range of research and engineering applications.

Through its robust and fast 0-D and 1-D chemistry solvers, LOGEresearch is an ideal tool for complete powertrain assessment, emissions efficiency investigation and optimization as well as exhaust emission analysis and improved after treatment control.



LOGEresearch allows you to simulate:

- 0-D homogeneous reactors
- 0-D stochastic reactors
- 1-D flame configurations
- Soot and NOx formation
- Catalytic conversion
- 1-D Biomass gasification
- In-cylinder combustion

Advanced features:

- Combustion, soot and NOx look-up table generation framework for tabulated chemistry coupling with third party CFD solvers.
- Automated set of tools for chemical kinetic mechanism reduction such as lumping, species removal etc.
- Advanced chemical mechanism analyses such as necessity, flow and sensitivity studies.
- A dedicated framework for simulation of exhaust after treatment systems.

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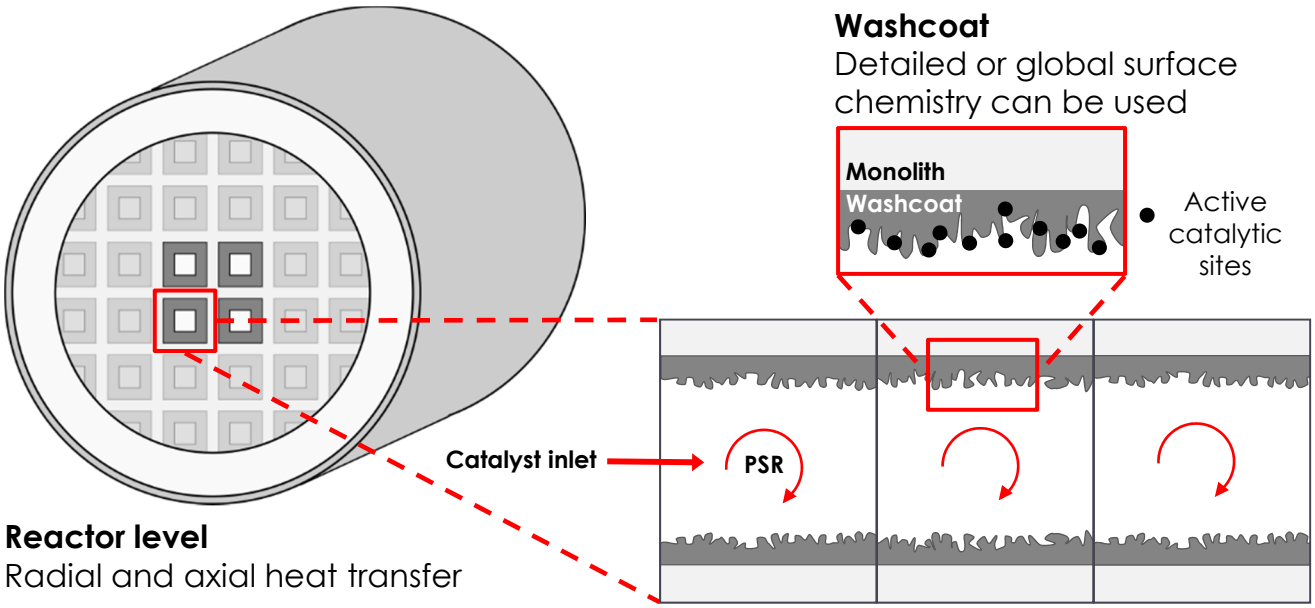


1-D exhaust after treatment modelling framework

LOGEresearch features a comprehensive framework that enables you to run catalyst simulations using:

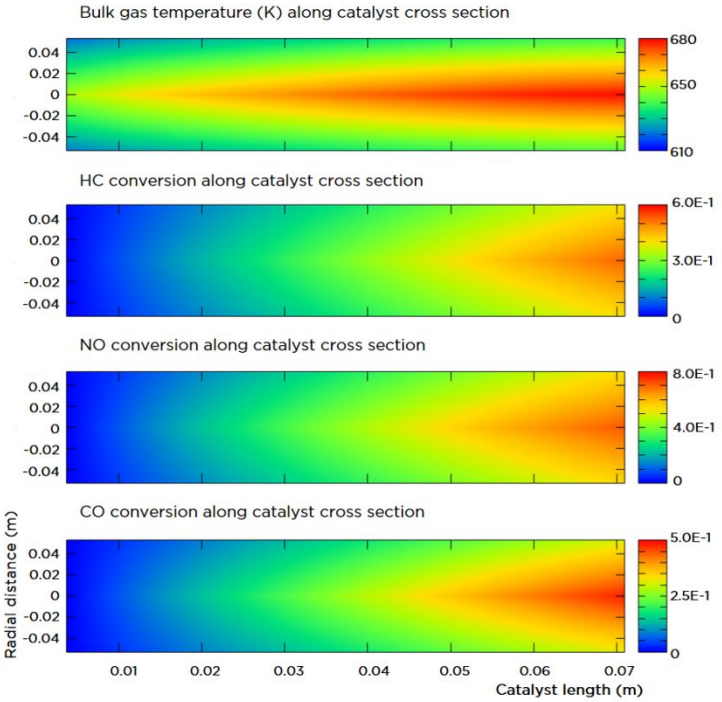
- Steady state or transient operating conditions.
- Single channel or multiple catalyst channels.
- Global chemistry schemes as well as detailed gas phase and surface chemistry schemes for:

» Selective Catalytic Reduction (SCR)

» Three-Way Catalyst (TWC)

» Diesel Oxidation Catalyst (DOC)

Catalyst channels are split into a user given number of uniformly sized cells which are modelled using Perfectly Stirred Reactor (PSR) assumption. For multichannel simulations, heat conduction between the channels is taken into account. Parallelization enables short CPU time.



Multi-channel simulation of the light off behavior of a Three-Way Catalytist (TWC).

Recent publication

Aslanjan, J. et al., "*Simulation of a three-way catalyst using transient single and multi-channel models*", SAE Technical Paper 2017-01-0966, 2017.

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