

Computer Modeling of Automotive Catalytic Converter

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Catalytic converters are used to control the emission of automobiles under highly transient conditions. An one-dimensional unsteady state model for an automotive catalytic converter is described and solved. Its transient behavior has been studied using a mathematical model, based on the concurrent process of chemical reaction, heat transfer, and mass transfer. The response of catalytic converter has been studied about simple disturbances, such as, step change of gas temperature and gas concentration, change of converter design parameters, operating conditions, etc.