

Student Name	Laura Glover
Company	Ricardo STC
Research University	Belfast
Academic Supervisors	Prof. Roy Douglas Dr. Geoffrey McCullough
Title	Automotive after-treatment modeling
Abstract	<p>Automotive after-treatment modeling presents many challenges for the automotive industry. The steady increase in emissions legislation severity and the consequent evolution in emissions control systems and the types of catalysts used therein, requires a continual review and update of models in existence. The number of models available within the literature is remarkable and those can be significantly different even when simulating a very similar application. Typically the models are not as predictive as desired, which also accounts for the large number of models in existence. The project aim, using a Diesel Oxidation Catalyst as a case study, is to:</p> <ol style="list-style-type: none"> 1. Carry out a literature review on the approach to automotive catalyst modeling 2. Review the automotive catalyst models made available for the project 3. Develop an experimental program which would yield Diesel Oxidation Catalyst performance data within the range of automotive applications and allow the development of improved kinetics 4. Identify a suitable process and / or technique for the extraction of kinetic parameters for the kinetic model from the experimental data 5. Update, if and when required, the model's design to enable the above and allow for future work in a similar or different application (flexibility and future proofing) <p>Model changes and the experimental design will be developed following a systems engineering approach to ensure all key affecting aspects are considered.</p>