Post-doctoral position in Environmental Catalysis (M/F)

Evaluation of three-way industrial catalysts on synthetic gas bench: synthesis, characterization and catalytic test

Research Field: Environmental heterogeneous catalysis, Automotive

Workplace: UCCS (ReMCat Team) – Cité Scientifique Villeneuve d'Ascq (59)

Industrial Collaboration: Aramco Overseas

Type of Contract: 12 months FTC Scientist – (CDD Temps-plein)

Expected Starting Date: February 2022

Remuneration: 28-29 k€ per year before taxes

Context

In order to reduce the environmental impact of the transport sector, Aramco is working on innovative solutions for after-treatment systems. Ever tightening emission standards lead to the development of a specific system to treat residual gas and reach the ambitious objective of an ultra-low emission vehicle.
The project focuses on evaluating advantages and weaknesses of pollutant abatement systems to intensify exhaust gas cleaning processes. It will be carried out within the ReMCat team whose activities are focused on the catalytic post-treatment of air pollutants.

Missions

Performances of 3-way monolithic catalysts will be evaluated on a synthetic gas bench reproducing the thermodynamic conditions of a car exhaust system. The conversion of pollutants (exhaust composition: CO, H_2, CO_2, NO, NO_2, CH_4, C_3's, C_5's diluted in O_2/He) will be studied using micro-GC and FTIR methods. Particular attention will be paid to the respect of new European regulations to avoid N_2O, CH_4 and/or NH_3 release. All catalysts will be characterized by various techniques: N_2 physisorption, ICP-OES, XRF, XRD, TPD-O_2, TPR-H_2, XPS, SEM, etc. Relationships highlighted between monolith properties and their catalytic performance will help to choose, synthetize and test the best formulation to get closer to the objective of an ultra-low emission car.

Candidate profile

- Ph.D. in heterogeneous catalysis. Strong knowledge in heterogeneous characterization techniques and experience with SGB catalytic test will be appreciated
- Language: Ability to write and communicate in English is essential.
- Autonomy, dynamic, organizational capacity, excellent interpersonal and writing skills.
- Ability to argue, analyze, synthetize and think critically.

Contacts

To apply, please send your resume and cover letter by e-mail to:

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