

## POSTDOCTORAL POSITION: TEM under Catalytic Conditions

The main aim of the project is to perform operando high-resolution TEM studies on model catalysts under actual operation conditions: high temperatures and atmospheric pressures. This work will play an important role in a collaboration between academia and industry in the NIMIC project 'Nano-Imaging under Industrial Conditions' ([www.realnano.nl](http://www.realnano.nl) <<http://www.realnano.nl>> ). This project combines the development and application of in-situ TEM and scanning probe techniques. For the operando TEM experiments, the post-doc will use special nanoreactors that have been developed within the NIMIC project; new generations of these high-pressure cells will be designed according to the requirements of the post-doc and other users in the NIMIC consortium. An important initial task for the postdoc will be to test and optimize the nanoreactors and the peripheral instrumentation, such as gas systems, TEM holders and loading tools. Once the instruments are fully operational, the postdoc will use them for the investigation of a variety of catalytic systems 'in action'.

The post-doc's TEM results will be correlated with the high-pressure STM results obtained on the same catalytic systems at Leiden University, the ultimate goal being to reach a complete atomic/molecular-scale understanding of catalytic mechanisms under relevant process conditions. The operando TEM studies will also be coupled to bulk catalyst performance studies in conventional catalytic testing equipment, to identify opportunities, problems and limitations in the use of the two operando techniques, aiding their development and optimisation. The postdoc will perform his/her work in intimate collaboration and communication with researchers at the Delft University of Technology, Leiden University, the catalyst companies Albemarle (Amsterdam, the Netherlands) and Haldor Topsoe (Lyngby, Denmark) and the TEM-manufacturing company FEI.

The appointment will be for two years initially with a possible extension of another year. The postdoc will be employed by the Delft University of Technology and make use of the high-resolution TEM facilities in Delft and at the company Haldor Topsoe in Lyngby, Denmark.

We will accept applications until Sunday, December 6, midnight.

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