

PhD graduate Camila Fernandez (UCL) is the winner of the 2016 Umicore Materials Technology Award

Dr Camila Fernandez has received the € 10,000 Umicore Materials Technology Award for her PhD work in the field of exploring dynamic catalytic processes for synthesizing ammonia on ruthenium-supported nanoparticles at low temperatures. Dr Fernandez's entry was one of 15 submitted from all over Europe.

Dr Fernandez, who is from Chile, started her academic work on catalysis during her Masters studies at the University of Concepción. During these studies, she took part in a research exchange at UCL where she deepened her interest in the subject. In 2011, she moved to Belgium to embark on her doctoral studies under the supervision of Professors Eric Gaigneaux and Patricio Ruiz at UCL's Institut de la Matière Condensée et Nanosciences.

Speaking about the award, Dr Fernandez said, "I am very happy that this work has been recognized in the industrial world. The work was a real collective effort and the award is for the whole team at UCL and for my family. The research that we have done sheds new light on the way catalytic reactions work and will hopefully lead to further improvements in catalytic performance in the future."

An Van de Vel, Umicore's Senior Manager of External Science and Technology added: "Catalysis is one of Umicore's main competences and we hope that Dr Fernandez's work will increase awareness and understanding of catalysis in this specific field. Her thesis is also an example of outstanding academic work that has obvious practical benefits such as lowering energy consumption and increasing selectivity in catalytic reactions. We would like to congratulate her and the faculty at UCL for their achievement."

Notes to editors:

About Dr Fernandez's research:

Dr Fernandez studied the synthesis of ammonia (NH₃) from gaseous hydrogen and nitrogen at low temperature and pressure. The goal was to elucidate the processes occurring at low temperature, upon interaction of nitrogen and hydrogen molecules with the solid surface of catalysts containing ruthenium nanoparticles. Results revealed that, under certain conditions, dynamic processes occur at the surface, involving hydrogen transfer and a continuous modification of the properties of the metal nanoparticles. These processes determine the kinetic parameters and reaction pathways of low-temperature ammonia synthesis. This work contributes to the research and technological development in heterogeneous catalysis, as it provides valuable information on how to perform catalytic hydrogenation processes with lower energy consumption and higher selectivity.

[Research poster](#)

About the Umicore Materials Technology Award:

The Umicore Materials Technology Award is granted to a PhD graduate who, through his or her research, contributes to science in fields that are crucial both to the growth of Umicore's business and the development



of a sustainable society. These areas are: Recycling / resource scarcity related to metals, materials for catalysis and materials for batteries.

Umicore's partners, the Belgian funds for scientific research Fonds Wetenschappelijk Onderzoek (FWO) and Fonds de la Recherche Scientifique (FNRS) selected the laureates and ensured the scientific excellence of their work. Since its launch nine years ago, Umicore and its partners have judged 220 entries from across Europe.

For more information

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