



## Ana Paulina GOMORA-FIGUEROA

### Home Country

Mexico

### Degree

Post-Doctorate in Chemistry

### Expertise

Chemistry

### Research Focus

Porous Metal-Organic Frameworks

### Host University

University of California Berkeley, United States

### Fellowship Awarded

2010

Ana Paulina Gomora-Figueroa was born and raised as the eldest of five children in Mexico City. Both of her parents are engineers and as a child she often played in the lab of her mother, a chemical engineer and researcher at the Mexican Institute of Oil. She played again with chemistry and decided to study sciences during a junior high school science festival, where she and her partner won first prize for an eco-friendly paint they made from Mexican cactus.

Ana Paulina earned her BSc and MSc degrees in chemistry at the National Autonomous University of Mexico (UNAM) before becoming an exchange doctoral student in 2008 in the Faculty of Sciences at Masaryk University in Brno, Czech Republic. She obtained her doctorate in chemistry in 2010 from the Institute of Chemistry at UNAM.

An instructor of thermodynamics in the Faculty of Engineering at UNAM, she is researching the development and deployment of recyclable and long-lived CO<sub>2</sub> capture and storage materials (or other small molecules), along with the technological implementation. Her research pursues the generation of water-stable and well-defined metal-organic frameworks (MOFs), which exhibit a high surface area for interaction with fossil-fuel burning flue gases (that can strip the CO<sub>2</sub> from a low-pressure stream—consisting primarily of N<sub>2</sub>, CO<sub>2</sub>, and H<sub>2</sub>O—and then release it for sequestration with minimal energy input). This reduces the amount of greenhouse gases released into the atmosphere.

The targeted applications of the resulting materials will range from the high selectivity and storage for CO<sub>2</sub> to a more efficient capture from a low pressure stream of flue gas. In addition, these small molecules may be used as chemical feedstock for the construction of more complex molecules. This will allow, in turn, the development of more efficient and atom-economical process technologies for their use in commercial applications. Ana Paulina considers that her research will provide significant contributions to help her country manage current environmental challenges such as alternative energies and global warming. She is also interested in helping initiate collaborative and interdisciplinary research programs in Mexico. When she completes her post-doctorate studies she intends to do research and teach at the National Autonomous University of Mexico.