

Clarimar Camacho describes her PhD Research Project and her plans IANAS-OWSD Prize work at the University of California in Riverside.

I am doing a research project towards a PhD in Physical Chemistry at the University Central of Venezuela. My PhD adviser is Professor Carmelo Bolívar. Our laboratory group works in the design of catalysts for treatment of petroleum fractions to yield combustibles and for the treatment of used lubricants, so they can be recycled. Catalysts facilitate chemical reactions without being consumed in the process. Catalysts have an economical impact on industrial processes by increasing the efficiency of production. They also play an essential role in protecting the environment. As part of my research, I work in the design of nano-sized catalysts for hydro-treatment of oils by non-conventional methods. These are very fine powders with a large surface area available for catalytic action. Moreover, the synthesized catalysts have lower metal content than commercial catalysts. Such characteristics have a positive economic impact. I determine the performance of catalysts for upgrading vacuum gasoil. I characterize the treated gasoil by means of the following techniques: a simulated distillation, gas chromatography-sulfur chemiluminescence detector, and gas chromatography-mass spectrometry. The



IANAS-OWSD prize will allow me to use the facilities of the Chemistry Department at UC Riverside, which include a number of surface-sensitive techniques, such as: infrared absorption spectroscopy, temperature-programmed desorption, X-ray photoelectron spectroscopy, low-energy ion scattering, secondary ion mass spectrometry, Auger electron spectroscopy, and low-energy electron diffraction that are not available at the University Central of Venezuela; these techniques could help me in the comprehension of the catalysts morphology. My host researcher at UC Riverside will be Professor Francisco Zaera who is an expert in Surface Chemistry.

I am very grateful to IANAS for this opportunity to strengthen my doctoral research and broaden my international contacts and experience. I also hope a link will result between the Central University in Venezuela and the University of California in Riverside for the development of future joint projects.