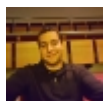


Last Summer on UPRM ^[1]

Submitted by [Angel R. Agrinsoni-Santiago](#) ^[2] on 5 August 2016 - 3:08pm



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Computacional Catalisis Group (Sandra Albarracin, Prof. Maria Curet-Arana and Angel R. Agrinsoni)

During the last ten weeks I have been working with zeolites modified by transitions metals for the catalytic conversion of methane. This process would result in two main advantages: (1) methane is an inexpensive raw material; (2) a reduction of its emissions into the atmosphere would curb greenhouse gas emissions into the atmosphere.

Zeolites are microporous material usually composed of silicon, oxygen and aluminum atoms. Due to the presence of aluminum atoms on the framework, cations can be found on its structure to balance the charge of the framework. Usually these cations are sodium, but these sodium cations

can be exchanged for other transition metals, such as zinc (Zn), magnesium, gold or copper. The transition metal on the zeolites modifies the catalytic and adsorptive properties of the system, favoring its use on different applications.

As a part of the Reconfigurable and Multifunctional Soft Materials REU program at the UPRM I performed a computational study, to analyze the interaction of methane with the faujasite zeolite modified with Zn. By understanding how methane interacts with the Zn-modified zeolites, we could effectively design processes that convert methane into more valuable products such as methanol or acetic acid. Our aim in the study was to quantify the effect of the aluminum atoms on the catalytic activity of Zn-modified zeolite for methane activation

The summer was a good experience, full of adventures and opportunities. Through various seminars, we learned how technical and scientific skills are helpful for our future careers (either in industry or graduate school). Now that the summer is nearly over it is time to get ready for my LAST SEMESTER AT THE UPRM! ANTES, AHORA Y SIEMPRE COLEGIO!

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