

**BENEMÉRITA UNIVERSIDAD AUTÓNOMA DE PUEBLA**  
**INSTITUTO DE FÍSICA**  
**“Ing. Luis Rivera Terrazas”**



**SEMINARIO SEMANAL**  
**“Jesús Reyes Corona”**

**“Unveiling the Growth Mechanism of  
Supported Honeycomb-Like Layered  
Double Hydroxide Nanostructures”**

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ZnAl layered double hydroxide (ZnAl-LDH) films were grown on Al substrates through hydrothermal method under different synthesis conditions. The obtained materials consist of honeycomb-like assemblies of interconnected nanosheets with apparent preferential orientation. It was observed that the size features of the resulting frameworks depend on the synthesis parameters, but not their morphology. The evolutionary selection is shown as the actual growth mechanism behind formation of this peculiar morphology. The bases of the mechanism were implemented in an algorithm that accounts for different synthesis conditions. It was found that the simulated structures mimic the topology of the synthesized ZnAl-LDH frameworks. Moreover, the developed evolutionary selection algorithm anticipates the effect of the synthesis parameters in the resulting size and morphological features. Finally, it is proposed that the same growth mechanism underlies formation of unsupported radial assemblies with compact cores, e.g., flower-, star- and desert rose-like nanostructures

**Auditorio del Instituto**  
**Viernes 10 de noviembre de 2023**  
**13:00 hrs**