**Elucidation of Heterogeneous Catalytic Nanostructures**

**Using *“Surface-Sensitive”* Techniques at the Molecular Level**

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In this talk, we will present 3 different problems regarding our ongoing research efforts, which seek elucidation via synchrotron-based characterization techniques:

i)Understanding the surface/electronic structure of PdAg/MnOx/TiO2-based bi-metallic/tri-metallic formic acid dehydrogenation catalysts.

ii)Shedding light on the surface functional groups of novel graphene-like photocatalysts that can be activated via VIS light.

iii)Investigation of the surface structure, composition, defects, coordination and electronic structure of LaCo3-xMnxO3±y -based mixed perovskite catalysts for DeNOx catalytic applications.