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Bridging the gap of low to high hierarchy chemical nanosensor platforms: Recent advancements at NASA glenn research center

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A major objective in aerospace sensor development is to produce sensors that are small in size, easy to batch fabricate and low in cost, and have low power consumption. Chemical sensors involving nanostructured materials can provide these characteristics as well as the potential for the development of sensor systems with unique properties and improved performance. However, the fabrication and processing of nanostructures for sensor applications currently is limited by the ability to control their location on the sensor platform, which in turn hinders the progress for batch fabrication. This presentation will discuss the following: The development of a novel room temperature methane (CH_4) sensor fabricated using porous tin oxide (SnO_2) nanorods as the sensing material, the advantages of using nanomaterials in sensor designs, the challenges encountered with the integration of nanostructures into microsensor/devices, and the different methods that have been attempted to address these challenges., An approach for the mass production of sensors with nanostructures using a method developed by our group at the NASA Glenn Research Center to control the alignment of nanostructures onto a sensor platform will also be described.

Biography

Azlin M Biaggi-Labiosa has a PhD in Chemical Physics from the University of Puerto Rico and she is currently a Research Electronics Engineer within the Chemical Sensors Group at NASA Glenn Research Center in Cleveland, OH. She has authored and co-authored more than 20 papers. Her main research focus is on the development of new nanomaterials to use them as the sensing material for chemical gas sensors.

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