Contribution ID: **183** Type: **Poster Presentation**

LaAlO₃ sheet-like nanostructures synthesized through microwave-assisted method and their gas sensing characteristics

Tuesday, 26 June 2018 15:00 (2 hours)

Lanthanum (La) based perovskite oxides such as LaFeO₃, LaCoO₃ and LaAlO₃ have stimulated great interest in the gas sensing technology world as promising candidates for gas sensing towards different gases. This is due to their unique electrical and electrocatalytic properties, providing good response with high selectivity and stability. Out of all the La based perovskite oxides, LaAlO₃ is a quite new perovskite that has mostly been used as an additive to other materials such as ZnO and SrTiO₃ due to its good electron gas conductivity. However, there are only a few reports on the application of LaAlO₃ for gas sensing. In this work, LaAlO₃ nanostructures have been synthesized using metal nitrate salts through the hydrothermal microwave-assisted method. Characterizations of the synthesized materials by means of X-ray diffraction, scanning electron microscopy and nitrogen adsorption confirmed the formation of high purity hexagonal 2D sheet-like structures LaAlO₃ with high surface area. The sheet-like structures were assessed for gas sensing towards several test gases namely CO, CH₃, C₂ H₅ OH, NH₃ and NO₂ at different working temperatures ranging from room temperature to 400 &#176C.

Please confirm that you
have carefully read the
abstract submission instructions
under the menu item
”Call for Abstracts”
(Yes / No)

Yes

Consideration for
student awards
Choose one option
from those below.
N/A
Hons
MSc
PhD

PhD

Supervisor details
If not a student, type N/A.
Student abstract submision
requires supervisor permission:
please give their name,
institution and email address.

Prof G.H Mhlongo, Council for Scientific and Industrial Research (CSIR), gmhlongo@csir.co.za

Primary authors: Ms MHLONGO, Gugu (CSIR, MSM, Nano Centre); Prof. SWART, Hendrik (University of the Free State); Ms SHINGANGE, Katekani (CSIR/UFS)

Presenter: Ms SHINGANGE, Katekani (CSIR/UFS)

Session Classification: Poster Session 1

Track Classification: Track A - Physics of Condensed Matter and Materials