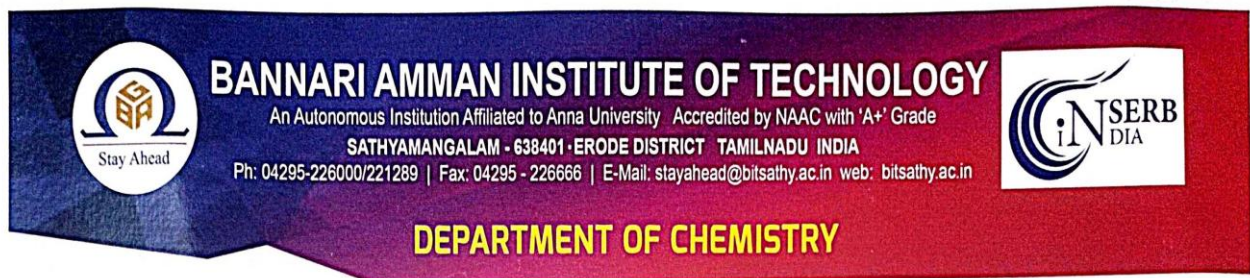




## NATIONAL CONFERENCE




Dr S. B. Ronald, Reader in Chemistry, Sri YN College (A), Narsapur, has attended and presented a paper entitled “Synthesis and Fabrication of ZnO/Zn-TiO<sub>2</sub>/FTO Thin Film using Sol-Gel and Electrochemical Deposition Techniques” in SERB Sponsored two days National Conference on Futuristic Materials in Science and Technology (NCFMST – 2023) organized by Department of Chemistry, Bannari Amman Institute of Technology, Sathyamangalam during 05-10-2023 & 06-10-2023.

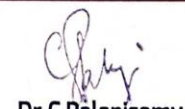


### Certificate

This is to certify that Prof. / Dr. / Mr. / Ms. Ronald S B  
Sri Y N College  
has participated / presented a paper (Oral/Poster) entitled Synthesis And Fabrication of ZnO/Zn-TiO<sub>2</sub>/FTO Thin Film Using Sol-Gel And Electrochemical Deposition. in SERB Sponsored two days National Conference on Futuristic Materials in Science and Technology (NCFMST - 2023) organized by Department of Chemistry, Bannari Amman Institute of Technology, Sathyamangalam during 05-06 October 2023.

  
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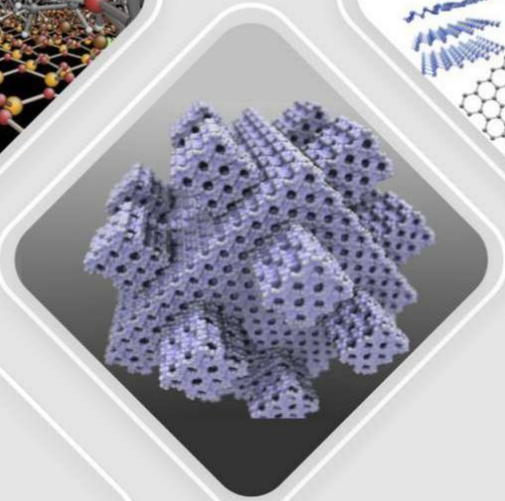
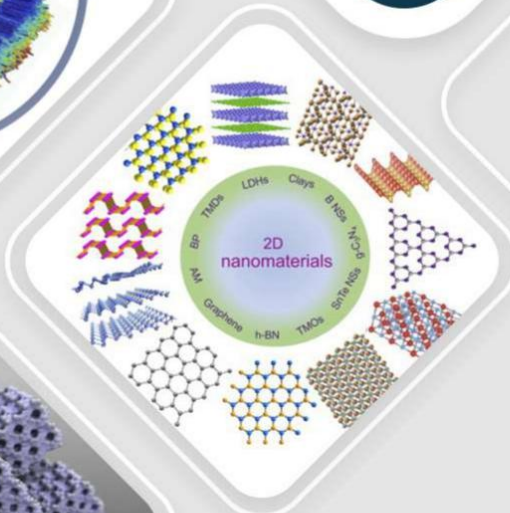
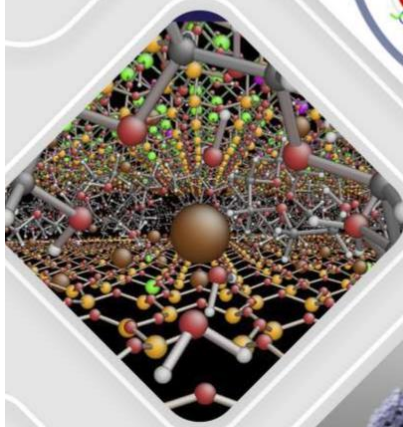
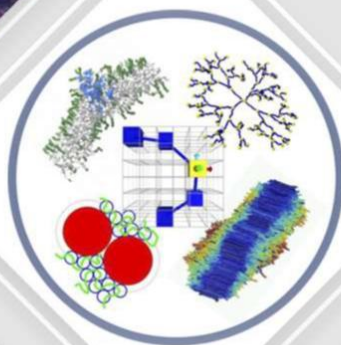
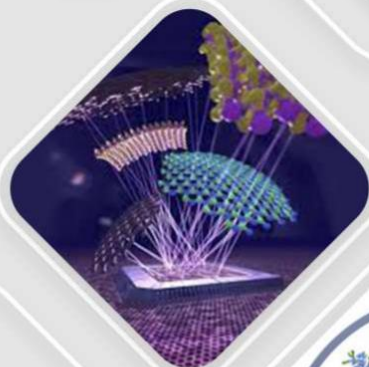


# PROCEEDINGS

## National Conference on Futuristic Materials in Science and Technology (NCFMST - 2023)

05<sup>th</sup>-06<sup>th</sup> October 2023

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AB 99

## Synthesis and Fabrication of ZnO/Zn-TiO<sub>2</sub>/FTO Thin Film using Sol-Gel and Electrochemical Deposition Techniques

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### Abstract

In this paper demonstrates the synthesis and fabrication of ZnO/Zn-TiO<sub>2</sub> on FTO glass substrate by using an electrochemical deposition and sol-gel spin coating techniques for optical investigations. This prepared thin film samples were kept for the calcination temperature at 500°C for 30 min. X-ray diffraction (XRD), Raman spectroscopy and atomic force microscopy (AFM) used for their structural, functional and topographical properties. First, the XRD pattern evidenced the rutile-TiO<sub>2</sub> and ZnO hexagonal Wurtzite structure with the standard JCPDS files. Raman spectrum revealed, the first order scattering peaks (99 and 444 cm<sup>-1</sup>) of E<sub>2</sub> low and high active phonon modes which was corresponding to the ZnO. The broader peaks were noticed from 515 to 720cm<sup>-1</sup> and confirmed the presence of anatase TiO<sub>2</sub> crystals. Furthermore, AFM recorded surface topography with a scanning resolution of 256 x 256 pixels and evidenced the average roughness of 280 nm. In future, these thin film useful for the fabrication of humidity sensor applications.

**Keywords:** Sol-Gel, Electrochemical, Zn-TiO<sub>2</sub>, Rutile, XRD

### References

1. Saravanan, S., Sivanandan, T., Ramalingam, G., (2022), Optical, thermal and magnetic properties of strontium ferrite nanoparticles. *International Journal of Nanoscience and Nanotechnology*. 18(4): 275-284.