

**SYNTHESIS OF Co_3O_4 NANOPARTICLES FOR NH_3 GAS SENSING
AT ROOM TEMPERATURE & CELL VIABILITY ANALYSIS**

**THESIS SUBMITTED TO THE BHARATHIAR UNIVERSITY IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF
DOCTOR OF PHILOSOPHY IN PHYSICS**

**By
JINCY C. S**

**Under the Guidance of
Dr. P. MEENA
Principal**



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This is to certify that the Ph.D. candidate **Mrs. C. S. JINCY** working under my supervision has published the following research articles in Scopus and Web of Science – Science Citation Index Expanded.

1. **C. S. Jincy, Dr. P. Meena.**, Synthesis of Co_3O_4 nanoparticles for sensing toxic gas at room temperature., *Materials Today Proceedings*, 33 (2020) 2362-2365. <https://doi.org/10.1016/j.matpr.2020.04.857>.
2. **C.S. Jincy, Dr. P. Meena.**, Synthesis of Cu doped cobalt oxide nanoparticles as ammonia gas sensor operating at room temperature., *Materials Today Proceedings*, 43 (2021) 2459-2463. <https://doi.org/10.1016/j.matpr.2021.02.529>. (Cited by 1)
3. **C.S. Jincy, Dr. P. Meena.**, Evaluation of cytotoxic activity of Fe doped cobalt oxide nanoparticles., *Journal of Trace Elements in Medicine and Biology*, 70 (2022) 126916. <https://doi.org/10.1016/j.jtemb.2021.126916>. (Cited by 1)
4. **C.S. Jincy, Dr. P. Meena.**, Synthesis, characterization, and NH_3 gas sensing application of Zn doped cobalt oxide nanoparticles., *Inorganic Chemistry Communications*, 120 (2020) 108145. <https://doi.org/10.1016/j.inoche.2020.108145>. (Cited by 17).

The contents of the publications incorporate part of the results presented in her thesis.



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List of Abbreviations

LIST OF ABBREVIATIONS

LSPR	Localized Surface Plasmon Resonance
SERS	Surface Enhanced Raman Scattering
SEF	Surfaced Enhanced Fluorescence
CNW	Carbon Nano Wire
MB	Methyl Blue
PH	Hydrogen Potential
XRD	X-Ray Diffraction
TEM	Transmission Electron Microscopy
SEM	Scanning Electron Microscopy
EDX	Energy Dispersive X-Ray Analysis
FTIR	Fourier Transform Infrared
UV-Vis	Ultra Violet -Visible
CCD	Charged Couple Device
LED	Light Emitting Diodes
FWHM	Full Width At Half Maximum
SAED	Selected Area Electron Diffraction
IUPAC	International Union of Pure and Applied Chemistry
LTCC	Low Temperature Cofired Ceramics
MFC	Mass Flow Controllers
IDA	Interdigitated Array
I-V	Current-Voltage
MOS	Metal Oxide Semiconductor
IONP	Iron Oxide Nanoparticles
OER	Oxygen Evolution Reaction
EPR	Enhanced Permeability & Retention
PBS	Phosphate Buffered Saline
ROS	Reactive Oxygen Species
RDA	Recommended Dietary Allowance