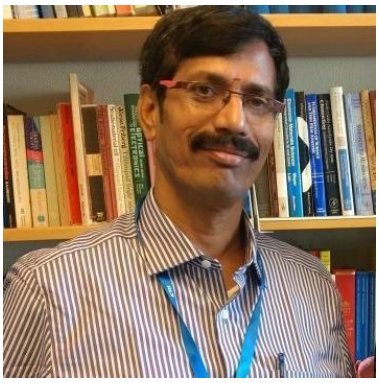
Brief CV of Dr. N.Gopalakrishnan



Dr.N.Gopalakrishnan completed his Ph.D in 1997 at Anna University, Chennai, in the Nucleation and Growth kinetics of III-V Semiconductor. After his Ph.D, he went to Royal Institute of Technology, Sweden for the Post Doctoral research. Later, he had been at Japan for 3 years for Post Doctoral Research at KIT and AIST, Japan. He had been offered prestigious STA (i.e JSPS) fellowship by Japan Science and Technology, Government of Japan for his stay at AIST, Tsukuba, Japan. He had been also at South Korea for one and half years as a Post-Doctoral researcher in Dong-Eui University.

Since March 2018, he is working as Professor of Physics at National Institute of Technology - Tiruchirapalli (NIT-T). Earlier, he joined as an Assistant Professor in Sept. 2007 and subsequently promoted to Associate Professor in Sept. 2010. He had been also served as Associate Dean (Academic) in NIT-T from Oct.2012 to Nov.2015 and Head, Department of Physics from Jan.2015-Jan.2018. He bagged Best Professor award in NIT-T during 2020-21.

Dr.N.Gopalakrishnan published around 100 research papers in the International journals and presented about 95 research papers in the National and International conferences. Under his supervision 08 scholars completed Ph.D degree and 51 students completed Master degree projects. Currently, 04 Ph.D scholars and 01 Post-Doctoral Fellow are doing research under his supervision.

Dr.N.Gopalakrishnan has good experience in Growth of III-V and II-VI thin films by versatile techniques, VPE, MBE, PLD and Sputtering. Beside, his group is working in synthesis of oxide nanomaterials, Spintronics, Gas sensing and Water purification. Recently, his group successfully fabricated ZnO *p-n* junction and CuO, ZnO & β-Ga_2O_3 based IDE sensor devices.

Beside his Post Doctoral Research in Sweden, Japan and South Korea, he visited United States of America, Germany, Hong Kong, Australia, Germany and Singapore for conferences, scientific discussion, Lab visit and to deliver invited lectures. He has delivered several invited lectures in India as well as in abroad.

CV of N.Gopalakrishnan

Name	:	**N. GOPALAKRISHNAN**
Date of Birth	:	9th May 1967
Nationality	:	Indian
Sex	:	Male
Martial Status	:	Married
Address for Communication	:	Dr. Nammalvar Gopalakrishnan Professor Department of Physics National Institute of Technology (NIT) Tiruchirapalli-620 015, INDIA. E.mail: ngk@nitt.edu Mobile: (+91) 98949-14905

Education:

Ph.D (Physics)	April 1997	Anna University, Chennai, India.
M.Phil (Physics)	Sept.1991	Anna University, Chennai, India.
M.Sc (Physics)	April.1990	M.K.University, Madurai, India.

Current Position and Administration detail:

Professor # Department of Physics National Institute of Technology Tiruchirappalli-15	Since 12 March 2018	Teaching and Research
Head Department of Physics National Institute of Technology Tiruchirappalli-15	Jan.2015-Jan2018	Teaching, Research and Administration
Associate Dean (Academic) National Institute of Technology Tiruchirappalli-15	Oct. 2012 –Nov.2015	Teaching, Research and Administration

Best Professor award during 2020-21

Teaching:

Under Graduate: * Engineering Physics-I * Engineering Physics-II

Post Graduate:
* Physics and Technology of Thin Film
* Solid State Physics
* Electrical, Magnetic and Optoelectronic Materials
* Fabrication Technology

Research:

Thin films growth (Sputtering / PLD / MBE / HVPE) / Synthesis of oxide nanostructures / Optoelectronics / Spintronics / Gas sensing / Polymer membranes for water filtration.

Research supervision:

Ph.D Supervision - 08 (completed)
04 (on going)
Master degree projects - 51 completed (M.Sc-30 & M.Tech-21)
02 (ongoing)
Post-Doctoral Fellow - 01 (on going)

Sponsored Projects ongoing/completed:

1. ***'Doping and Capping in ZnO thin films for spintronics applications'.***
   Funding agency- CSIR, Govt. of India (July 2014 – July 2017).

2. ***'Codoping and band gap engineering in ZnO thin films for optoelectronics applications'.***
   Funding Agency - DRDO, Govt. of India (Jan. 2009 – Jan. 2012).

No of Ph.D. Completed - (08)

Sl.No	Thesis title	Student name	Year	Course
1.	Realization of *p*-ZnO thin films for the fabrication of homojunction by R.F. Magnetron sputtering.	Dr.L.Balakrishnan	Jan 2013	Ph D
2.	Codoping and bandgap engineering in ZnO thin films by R.F. Magnetron sputtering.	Dr.S.Gowrishankar	Feb 2014	Ph D
3.	Hydrothermal synthesis, characterization and fabrication of CuO gas sensors.	Dr.S.Bhuvaneshwari	July 2017	Ph.D
4.	Growth, doping, characterisation and fabrication of ZnO based gas sensors by R.F. magnetron sputtering	Dr.E.Vinoth	July 2020	Ph.D
5	Effect of Nanofillers (GO, ZnO, GO-ZnO, Ag and Ag-ZnO) incorporated PSF/PVP Membranes for Water Purification	Dr.P.Pramila	August 2020	Ph.D
6	Doping and Capping in ZnO thin films for spintronics applications by R.F.Magnetron sputtering	Dr.N.Sivanantham	December 2020	Ph.D
7.	Synthesis, Doping, Fabrication and Characterization of ZrO_2 nanostructures for gas sensing applications.	Dr.E.Hemalatha	January 2021	Ph.D
8.	Synthesis, Doping and Characterization of β-Ga_2O_3 for room temperature gas sensing and in-vitro anticancer activities	Dr. Rekha Pilliadugula	February 2022	Ph.D

No of Post-Doctoral Fellows (01)

Sl.No	Research Area	Scholar name	Year	Program
1	Phosphor converted white Light Emitting Diodes (WLEDs)	Dr.V.Vasanthi	Since Nov.2019	Post-Doctoral

Details of Professional Experiences:

Organisation	Designation	Period From - To	Nature of Job
Dept. of Physics ***National Inst. of Technology*** ***Tiruchirapalli-620 015.***	***Professor***	***Since March 2018***	***Teaching & Research***
Dept. of Physics National Inst. of Technology Tiruchirapalli-620 015.	Associate Professor	Sept.2010-March 2018	Teaching & Research
Dept. of Physics National Inst. of Technology Tiruchirapalli-620 015.	Assistant Professor	Sept.2007-Sept. 2010	Teaching & Research
Dept. of Physics National Institute of Physics Tiruchirapalli-620 015.	CSIR-Scientist	May 2006-Sept.2007	Research & Teaching
Electronic Ceramic Centre Dong-Eui University, KOREA	Post-Doctoral Fellow	June 2004-August 2005	Research
AIST Central-2, Tsukuba, JAPAN.	AIST Post-Doctoral Researcher	Nov.2002 - March 2003	Research
AIST Central-2, Tsukuba, JAPAN.	**STA (JSPS) Fellow**	October 2000 - October 2002	Research
Kyoto Inst. of Tech (KIT), JAPAN.	Post-Doctoral Researcher	Oct.1999 – Mar 2000	Research
Royal Inst. of Tech (KTH), SWEDEN.	Post-Doctoral Researcher	May.1997 – Jun.1998	Research

Other Positions:

Organisation	Designation	Period
Laboratory of Semiconductor Materials School of Engineering Sciences KTH-Royal Institute of Technology, SWEDEN	Visiting Fellow	25-31 March 2018
Department of Electronic Materials Engineering, Australian National University (ANU), Canberra, AUSTRALIA.	Visiting Fellow	20-28 Feb.2014
Institute of Nanotechnology (INT), Kharlsure Institute of Technology (KIT), GERMANY.	Guest Researcher	24 May 2010 - 24 June 2010

Present work at NIT-Tiruchirapalli, India:

* Teaching for Under Graduate (B.Tech) and Post Graduate (M.Sc/M.Tech) students
* Research Supervision for Doctoral & Master Students
* Responsible for Thin film laboratory (Group leader)
* Developed Thin film laboratory
* Growth of ZnO thin films by ***RF Sputtering*** for LED and Spintronics applications
* Successfully fabricated *p*-ZnO films.
* Successfully fabricated ZnO *p-n junction*.
* Successfully fabricated GMR
* Synthesis of metal oxide nanostructures (ZnO, CuO, ZrO_2 and β-Ga_2O_3) for Gas sensing applications.
* Successfully fabricated ZnO- Ag IDE sensors, and β-Ga_2O_3-Ag IDE Sensors
* Successfully fabricated flexible CuO IDE sensors on PET substrate
* Fabrication of nanofillers incorporated polymer membranes (PSF/PVP) for water purification.

Research at Dong-Eui University, South Korea:

* Thin film growth of ZnO by ***Pulsed Laser Deposition (PLD)*** for LED application
  (GaN, B_2O_3 and BN doped ZnO in N_2O ambient by codoping and triple codoping approach)
* Characterisation of ZnO Thin films
  (Xrd, AFM, UV-VIS-NIR, PL, GDMS, Hall effect)
* ZnO Target Preparation for Ablation
  (Uniaxial press, Cold Isostaic Press, Ball Milling and Sintering)

Research at AIST- Japan:

* Thin film growth of GaAs on Si by ***MBE*** for solar cells application
  (Growth of GaAs and AlGaAs, Solar cell structures, Thermal Cyclic Annealing, Growth rate check, Flux measurement etc.)
* Thickness measurement (DEKTAK profiler)
* Chemical Cleaning of GaAs and Si Substrates
* Photolumienscence studies (PL), Atomic Force Microscope (AFM)
* Xrd analysis, in situ RHEED measurement during MBE
* Optimization of new ULVAC MBE system (MBE system Baking, cell baking etc.)
* Growth of metals on GaAs

Research Experience at KTH - Sweden & others:

* Epitaxial growth of InP:Fe by ***HVPE*** for Laser Fabrications
* Hall Measurements of epilayers.
* Reactive ion Etching (RIE), Photolithography
* Material processing, Fabrication of Mesas & Laser Characterisation
* Modelling on planar substrates for HVPE:
* Modelling on patterned substrates for HVPE:
  Anisotropy behaviour of InP, around [110] and [-110] directional etched Mesas
  (Effect of surface diffusion length and surface diffusion coefficient)

Publications in International Journals

1. Preparation and characterization of BaTiO 3–natural muscovite composites
   M. Kirubanithy, S. Divya, Tae Hwan Oh**, N. Gopalakrishnan** and K. Balamurugan
   J.Material Science: Materials in Electronics (In press); https://doi.org/10.1007/s10854-022-08877-4

2. Morphology dependent room temperature CO_2 sensing of β-Ga_2O_3
   Rekha Pilliadugula and **N Gopalakrishnan**
   Materials Today: Proceedings 58 (2022) 959-969

3. Effect of Cr on ZrO2 nanostructures for gas sensing investigation
   E Hemalatha and **N Gopalakrishnan**
   Bulletin of Materials Science 44 (2021), Article 292, pp 1-10

4. Ferromagnetism in Gd-doped ZnO thin films mediated by defects
   A Sukumaran, N Sivanantham, E Vinoth and **N Gopalakrishnan**
   Bulletin of Materials Science 44 (2021), Article 259, pp 1-11

5. Room temperature ammonia sensing performances of pure and Sn doped β-Ga_2O_3
   R Pilliadugula and **N Gopalakrishnan**
   Materials Science in Semiconductor Processing 135 (2021) 106086.

6. Effect of morphology and (Sn, Cr) doping on in vitro antiproliferation properties of hydrothermally synthesized 1D GaOOH nanostructures
   Rekha Pilliadugula, Jebiti Haribabu, Mohamed Kasim Mohamed Subarkhan, Cesar Echeverria, Ramasamy Karvembu and **N.Gopalakrishnan**
   Journal of Science: Advanced Materials and Devices 6 (2021) 351-363

7. Triggering of ferromagnetism by amine functionalization on ZnO:Mn films grown by RF magnetron sputtering.
   Sivanantham Nallusamy and **Gopalakrishnan Nammalvar**
   Journal of Materials Science: Materials in Electronics (2021) 32:1623-1630

8. Synthesis and characterization of pure and Cd doped ZrO_2 nano structures for ammonia sensing applications.
E Hemalatha and **N. Gopalakrishnan**
Materials Today: Proceedings 39(2020)1714-1718

9. Crystallite size and micro-strain investigations of hydrothermally synthesized β-Ga_2O_3 by different analytical methods.
Rekha P and **N. Gopalakrishnan**
Functional Material Letters 13(2020)2051018.

10. Effect of pH dependent morphology on room temperature NH_3 sensing performances of β-Ga_2O_3.
Rekha P and **N. Gopalakrishnan**
Materials Science in Semiconductor Processing 112 (2020) 105007.

11. Influence of Ga_2O_3, $CuGa_2O_4$ and Cu_4O_3 phases on the Sodium-ion Storage behaviour of CuO and its Gallium composites
Rekha Pilliadugula, Chandrasekaran Nithya and **N. Gopalakrishnan**
Nanoscale Advances 2 (2020)1269.

12. Effect of heat treatment on the optical properties of layered muscovite single crystal sheets.
M.Kirubanithy, N.Sivanantham, **N.Gopalakrishnan** and K.Balamurugan
Bulletin of Materials Science 43(2020) 87.

13. Fabrication of interdigitated electrode (IDE) based ZnO sensors for room temperature ammonia detection
E Vinoth and N Gopalakrishnan
Journal of Alloys and Compounds 824 (2020) 153900

14. Synthesis of ZrO_2 nanostructure for gas sensing application
E Hemalatha and **N Gopalakrishnan**
Bulletin of Materials Science 43 (2020) 12

15. Enhanced performance of PSF/PVP polymer membrane by silver incorporation
Pramila Ponnaiyan and **Gopalakrishnan Nammalvar**
Polymer Bulletin 77 (2020) 197-212

16. Enhancement of the PSF/PVP membrane performance by Ag-ZnO incorporation
P. Pramila and **N.Gopalakrishnan**
Materials Research Express 6 (2019)115006

17. Enhancing the saturation magnetisation in Ni doped ZnO thin films by TOPO functionalization
Sivanantham Nallusamy and **Gopalakrishnan Nammalvar**
Journal of Magnetism and Magnetic Materials 485 (2019) 297-303

18. Gas sensing performances of pure and Cu-doped ZrO_2 nano structures E Hemalatha and **N Gopalakrishnan**
Applied Physics A 125 (2019) 493

19. Effect of additives on graphene oxide incorporated polysulfone (PSF) membrane
Pramila Ponnaiyan and **Gopalakrishnan Nammalvar**
Polymer Bulletin 76 (2019) 4003-4015

20. Fabrication and characterization of pristine and GO incorporated pristine membranes for water purification
P. Pramila and **N. Gopalakrishnan**
AIP Conference Proceedings 2115 (2019) 030273.

21. Selective ammonia sensor based on copper oxide/reduced graphene oxide nanocomposite.
Bhuvaneshwari, Sakthivel, and **N.Gopalakrishnan**
Journal of Alloys and Compounds 788 (2019) 422-428.

22. Effect of Fe doping on the NH3 sensing properties of CuO nanostructures
S Bhuvaneshwari, **N Gopalakrishnan**
Journal of Materials Science: Materials in Electronics 30 (2019) 6920-6928.

23. Gas sensing performance of GaOOH and β-Ga_2O_3 synthesized by hydrothermal method: a comparison.
R Pilliadugula, **N.Gopalakrishnan**
Materials Research Express 6 (2019) 025027

24. Magnetic vortex state in a layered muscovite sheet silicate single crystal
M Kirubanithy, **N.Gopalakrishnan** and K Balamurugan
Materials Research Express 5 (2018) 096103

25. Ammonia sensing Characteristics of Yttrium doped ZnO thin films by RF Magnetron sputtering
E.Vinoth and **N.Gopalakrishnan**
Mater. Res. Express 5 (2018) 066413

26. Printed flexible electrochemical pH sensors based on CuO nanorods
L.Manjakkal, B.Sakthivel, **N.Gopalakrishnan**, R. Dahiya
Sensors and Actuators B: Chemical 263,(2018) 50-58

27. Gas sensing performance of RF magnetron sputtered Mg doped ZnO thin films.
E.Vinoth, S.Gowrishankar and **N.Gopalakrishnan**
Applied Physics A 124 (*2018) 433.*

28. Enhancement of antibacterial activity in the nanofillers incorporated PSF/PVP membranes.
P.Pramila and **N.Gopalakrishnan**
Materials Research Express 5 (4), (2018) 045306

29. Effects of ZnO incorporation on PSF-PEG mixed matrix membrane
P.Pramila and **N Gopalakrishnan**
AIP Conference Proceedings 1942 (2018) 080005

30. Effect of temperature on NH_3 sensing by ZnO: Mg thin film grown by radio frequency magnetron sputtering technique
E Vinoth and **N Gopalakrishnan**
AIP Conference Proceedings 1942 (2018) 080058

31. CuO mesostructures as ammonia sensors
S.Bhuvaneshwari and **N Gopalakrishnan**
American Institute of Physics Conference Series 1942 (2018) 50114

32. Enhancement of ferromagnetism in Thiol functionalized Mn doped ZnO thin films
Sivanantham Nallusamy and **N.Gopalakrishnan**
Materials Research Express 5 (2018) 026418

33. Effect of additive on Graphene oxide incorporated polysulfone (PSF) membrane
P Ponnaiyan, **N.Gopalakrishnan**
Polymer Bulletin (2018)1-13.

34. High Performance CuO Nanorectangles based Room Temperature Flexible NH3 Sensor.
Bhuvaneshwari Sakthivel , Libu Manjakkal , **N.Gopalakrishnan**
IEEE Sensors Journal 17 (20), (2017) 6529-6536

35. Free standing CuO-MnO_2 nanocomposite for room temperature ammonia sensing.
S.Bhuvaneshwari, S.Papachan and **N.Gopalakrishnan**
AIP Conference Proceedings 1832 (2017) 050126

36. RF magnetron sputtered Cd doped ZnO thin films for gas-sensing applications.
E.Vinoth, S.Gowrishankar, and **N.Gopalakrishnan**
Materials and Manufacturing Processes 32 (2017) 377-382

37. Fabrication of Thiol Functionalized Ni doped ZnO Thin Films for Room Temperature Ferromagnetism.
Sivanantham Nallusamy and **N.Gopalakrishnan**
IEEE Magnetics Letters 8, (2017) 2109304

38. Hydrothermally synthesized Copper Oxide (CuO) superstructures for ammonia sensing.
Bhuvaneshwari, S., and **N. Gopalakrishnan.**
Journal of Colloid and Interface Science 480 (2016) 76–84.

39. Room temperature ammonia and VOC sensing properties of CuO nanorods.
Bhuvaneshwari, S., and **N. Gopalakrishnan**
AIP Conf. Proc. 1731 (2016) 050112

40. Facile synthesis of low dimensional CuO nanostructures and their gas sensing applications.
Bhuvaneshwari, S., and **N. Gopalakrishnan.**
Crystal Research and Technology 51 (2016) 145–153.

41. Enhanced ammonia sensing characteristics of Cr doped CuO nanoboats.
Bhuvaneshwari, S., and **N. Gopalakrishnan.**
Journal of Alloys and Compounds 654 (2016) 202-208.

42. Optimization of CuO Ultra Thin Film for Gas Sensor Application by RF Magnetron Sputtering
N.Gopalakrishnan, L.Balakrishnan, B. Arunkumar and S. Gowrishankar
Journal of Nanoelectronics and Optoelectronics 9 (2014) 496-501.

43. A Comparative Study on *p*-ZnO:AlAs/*n*-ZnO:Al and *p*-ZnO:AlAsN/*n*-ZnO:Al Bilayer Homojunction Diodes Performance
. L. Balakrishnan, S.Gowrishankar, and **N. Gopalakrishnan**
ECS Solid State Letters 3 (2014) Q20-Q23

44. Role of surface functionalization in ZnO:Fe nanostructures
R.N. Lokesh, L. Balakrishnan, K. Jeganathan, Samar Layek, H.C. Verma, **N. Gopalakrishnan**
Materials Science and Engineering B 183 (2014) 39– 46.

45. Bandgap engineering in $Zn_{(1-x)}Cd_xO$ and $Zn_{(1-x)}Mg_xO$ thin films by RF Sputtering.
S. Gowrishankar, L. Balakrishnan and **N. Gopalakrishnan**
Ceramics International 40 (2014) 2135-2142.

46. Hydrothermal Synthesis and Gas Sensing Properties of CuO Nanorods
N. Gopalakrishnan, S. Bhuvaneshwari, L.Balakrishnan and S.Gowrishankar
Sensor letters 11 (2013) 2233-2240.

47. Fabrication of *p*-ZnO:ZrN thin films by RF magnetron sputtering.
S. Gowrishankar, L. Balakrishnan and **N. Gopalakrishnan**
Composite Interfaces 20 (2013) 623-634.

48. *p*-type formation mechanism of codoped and tridoped ZnO thin films.
L. Balakrishnan, S.R. Barman and **N. Gopalakrishnan**
Science of Advanced Materials 5 (2013) 462-468.

49. Fabrication of *n*-$Zn_{1-x}Ga_xO$ and *p*-$(ZnO)_{1-x}(GaP)_x$ thin films and homojunction.
S. Gowrishankar, L. Balakrishnan, T. Balasubramanian and **N. Gopalakrishnan**
Materials Science and Engineering B 178 (2013) 31– 38.

50. Activation of room temperature ferromagnetism in ZnO films by surface functionalization with thiol and amine
G. Jayalakshmi, **N. Gopalakrishnan,** T. Balasubramanian
Journal of Alloys and Compounds 551 (2013) 667-671.

51. NH_3 sensing by *p*-ZnO thin films.
L. Balakrishnan, S. Gowrishankar and **N. Gopalakrishnan**
IEEE Sensors Journal 13 (2013) 2055-2060.

52. Influence of oxygen partial pressure on ferromagnetic switching characteristics of ZnO:Cr thin films.
N. Gopalakrishnan, L. Balakrishnan, M. Suganya and S. Gowrishankar
Composite Interfaces 20 (2013) 221-228.

53. Fabrication of tridoped *p*-ZnO thin film and homojunction by RF magnetron sputtering.
L. Balakrishnan, S. Gowrishankar and **N. Gopalakrishnan**
Ceramics International 38 (2012) 6221–6227.

54. Fabrication of Al^{3+} and large radii mismatch As^{5+} codoped *p*-ZnO thin film and homojunction.
L. Balakrishnan and **N. Gopalakrishnan**
Thin Solid Films 520 (2012) 5702–5705.

55. Dual codoping for the fabrication of low resistive *p*-ZnO
L. Balakrishnan, S. Gowrishankar, P. Premchander and **N. Gopalakrishnan**
Journal of Alloys and Compounds 512 (2012) 235– 240.

56. Thickness and substrate orientation dependence of ferromagnetism in Mn doped ZnO thin films
N. Gopalakrishnan, L. Balakrishnan, A. Brindha and G. Jayalakshmi
Cryst. Res. Technol., 47 (2012) 45-52.

57. Optimization of Anodic Layer and Fabrication of Organic Light Emitting Diode.
N. Gopalakrishnan, S. Gowrishankar, T. R. Devidas and **L. Balakrishnan**
Advanced Materials Research 488-489 (2012) 1348-1352.

58. Influence of Al concentration on electrical, structural and optical properties of Al–As codoped p-ZnO thin films
L. Balakrishnan, S. Gowrishankar, J. Elanchezhiyan, **N. Gopalakrishnan**
Physica B 406 (2011) 4447 –4452.

59. Grain boundary defects induced room temperature ferromagnetism in V doped ZnO thin films
G. Jayalakshmi, **N. Gopalakrishnan**, B.K. Panigrahi, T. Balasubramanian
Crystal Research and Technology 46 (2011) 1257-1264

60. Realization of *p*-ZnO thin films by GaP codoping
S. Gowrishankar, L. Balakrishnan, J. Elanchezhiyan, T. Balasubramanian,
N. Gopalakrishnan,
Physica B 406 (2011) 4085–4088.

61. Influence of substrate and film thickness on structural, optical and electrical properties of ZnO thin films
N. Gopalakrishnan, L. Balakrishnan, K. Latha, and S. Gowrishankar
Cryst. Res. Technol.46 (2011) 361-367.

62. AlN codoping and fabrication of ZnO homojunction by RF sputtering
L. Balakrishnan, P. Premchander, T. Balasubramanian, **N. Gopalakrishnan**
Vacuum 85 (2011) 881-886.

63. Influence of grain size on the properties of AlN doped ZnO thin film
K.P. Bhuvana, J. Elanchezhiyan, **N. Gopalakrishnan**, T. Balasubramanian
Materials Science in Semiconductor Processing 14 (2011) 84-88.

64. Characterization of $(ZnO)_{1-x}(AlN)_x$/ZnO junction for optoelectronic applications
N. Gopalakrishnan, L. Balakrishnan, V. Senthamizh Pavai, J. Elanchezhiyan, T. Balasubramanian
Current Applied Physics 11 (2011) 834-837.

65. Influences of thermal annealing on the stuctural, optical and electrical properties of nanostructured cadmium sulphide thin films
G. Bakiyaraj, **N. Gopalakrishnan** and R. Dhanasekaran
Chalcogenide Letters 8 (2011) 419-426.

66. Vacancy mediated room temperature ferromagnetism in $Zn_{1-x}Mn_xO$ thin films
N. Gopalakrishnan, L. Balakrishnan, B. Srimathy, M. Senthil Kumar and T. Balasubramanian
Physics Status Solidi A 207 (2010) 2180–2184.

67. Nucleation and characterization of $Zn_{1-x}Mn_xO$ thin films deposited on different substrates
N. Gopalakrishnan, J. Elanchezhiyan, K.P. Bhuvana and T. Balasubramanian
Physica B: Condensed Matter 404 (2009) 1563-1567.

68. Investigations of the properties of $Zn_{1-x}Cr_xO$ thin films grown by RF magnetron sputtering
J. Elanchezhiyan, K.P. Bhuvana, **N. Gopalakrishnan,** B.C. Shin, W.J. Lee, T. Balasubramanian
Journal of Alloys and Compounds 478 (2009) 45-48.

69. A novel approach for codoping in ZnO by AlN
K.P. Bhuvana, J. Elanchezhiyan, **N. Gopalakrishnan**, B.C. Shin, W.J. Lee, T. Balasubramanian
Vacuum 83 (2009) 1081-1085.

70. Realization of p-type conduction in $(ZnO)_{1-x}(AlN)_x$ thin films grown by RF magnetro n sputtering
K.P. Bhuvana J. Elanchezhiyan, **N. Gopalakrishnan** and T. Balasubramanian
Journal of Alloys and Compounds 478 (2009) 54-58.

71. Realization of room temperature ferromagnetism in $Zn_{1-x}Cr_xO$ thin films grown by RF magnetron sputtering
J.Elanchezhiyan, K.P. Bhuvana, **N. Gopalakrishnan**, Yong Chang, S. Sivananthan, M. Senthil Kumar and T. Balasubramanian
Journal of Alloys and Compounds 468 (2009) 7–10

72. Optimization of $Zn_{1-x}Al_xO$ film for antireflection coating by R.F. sputtering
K.P. Bhuvana J. Elanchezhiyan, **N. Gopalakrishnan** and T. Balasubramanian
J. of Alloys and Compounds 473(2009) 534-537.

73. Codoped (AlN) and monodoped (Al) ZnO thin films grown by R.F. Sputtering; A comparative study
K.P. Bhuvana J. Elanchezhiyan, **N. Gopalakrishnan** and T. Balasubramanian
Applied Surface Science 255 (2008) 2026–2029

74. On the nucleation and growth of $Zn_{1-x}Mn_xO$ thin films grown by RF magnetron sputte ring
N.Gopalakrishnan, J. Elanchezhiyan, K.P. Bhuvana and T. Balasubramanian
Scripta Materialia. 58 (2008) 930-933

75. Fabrication of GaN doped ZnO nanocrystallines by Laser ablation
N. Gopalakrishnan, B.C. Shin, K.P. Bhuvana, J. Elanchezhiyan and T. Balasubramanian
J. of Nanoscience and Nanotechnology 8 (2008) 4168-4171.

76. Improvement of stoichiometry in $(ZnO)_{1-x}(GaN)_x$ thin films grown by Laser ablation
N. Gopalakrishnan, B.C. Shin, K.P. Bhuvana, J. Elanchezhiyan and T. Balasubramanian
J. of Alloys and Compounds 465 (2008) 502-505.

77. Effect of doping concentration on $Zn_{1-x}Mn_xO$ thin films grown by RF magnetron sputtering
J. Elanchezhiyan, K.P. Bhuvana, **N. Gopalakrishnan** and T. Balasubramanian
Z. Naturforsch 63 a (2008) 585-590.

78. Investigation on Mn doped ZnO epitaxial films grown by RF magnetron sputtering
J. Elanchezhiyan, K.P. Bhuvana, **N. Gopalakrishnan** and T. Balasubramanian
Materials Letters 62 (2008) 3379-3381.

79. Substrates effect on $Zn_{1-x}Mn_xO$ thin films grown by RF magnetron sputtering
J. Elanchezhiyan, K.P. Bhuvana, **N. Gopalakrishnan** and T. Balasubramanian
J. of Alloys and Compounds 463(2008) 84-88.

80. Influence of post-deposition annealing on the structural and optical properties of ZnO thin films prepared by sol–gel and spin-coating method.
G. Srinivasan, **N. Gopalakrishnan**, Y.S. Yu, R. Kesavamoorthy and J. Kumar
Superlattices and Microstructures 43(2008) 112-119.

81. Development of NLO tunable band gap organic devices for optoelectronic applications
B. K. Periyasamy, Robinson S. Jebas, **N. Gopalakrishnan**, T.Balasubramanian
Materials Letters 61(2007)4246-4249.

82. An attempt on triple doping in ZnO by pulsed laser deposition
N. Gopalakrishnan, B.C. Shin and T. Balasubramanian
Materials Letters 61 (2007) 4420-4422.

83. Effect of GaN doping on ZnO films by pulsed laser deposition
N. Gopalakrishnan, B.C. Shin, H.S. Lim, T. Balasubramanian and Y.S. Yu
Materials Letters 61 (2007)2307-2310.

84. Codoping in ZnO using GaN by pulsed laser deposition
N. Gopalakrishnan, B.C. Shin, H.S. Lim, T. Balasubramanian and Y.S. Yu
Journal of Crystal Growth 294(2006)273-277.

85. Comparison of ZnO:GaN films on Si(111) and Si(100) substrates by pulsed laser deposition
N. Gopalakrishnan, B.C. Shin, H.S. Lim, G.Y. Kim and Y.S. Yu.
Physica B 376-377 (2006) 756-759.

86. Effect of low temperature grown buffer layer thickness on the growth of GaAs on Si by MBE.
N. Gopalakrishnan, K. Baskar, H. Kawanami and I. Sakata
Journal of Crystal Growth 250(1-2)(2003)29-33.

87. Rapid epitaxial growth of conducting and insulating III-V compounds on (001), (110), (111)A, (311)A and (311)B surfaces by HVPE.
S. Lourdudoss, **N. Gopalakrishnan**, H. Holtz, M. Deschler and R. Beccard
Metallurgical and Materials Transactions A, 30A (1999)1047-1051

88. Self consistent model for InP selective regrowth by Hydride Vapour Phase epitaxy.
N. Gopalakrishnan , E.R. Messmer and S. Lourdudoss
Japanese Journal of Applied Physics, 38 (1999) 1037-1039

89. Investigations on the nucleation kinetics of L-Arginen Phosphate single crystals.
P. Mohankumar, **N. Gopalakrishnan**, R. Jayavel and P. Ramasamy
Crystal Research Technology 34(1999)1265-1268.

90. Compositional analysis on quaternary $Ga_xIn_{1-x}As_yP_{1-y}$ vapour phase epitaxy: A comparison between theory and experiment.
N. Gopalakrishnan, R. Dhanasekaran and S. Lourdudoss
Materials Chemistry and Physics 50(1997) 70-75.

91. Thermodynamic analysis of $GaAs_{1-x}P_x$ vapour phase epitaxy
N. Gopalakrishnan and R. Dhanasekaran
J.of Electrochemical Soc., 143 (1996) 2631-2635.

92. On the nucleation and composition analysis of InAs1-xPx vapour phase epitaxial growth
N. Gopalakrishnan and R. Dhanasekaran
J. Crystal Growth 162(1996)113-120.

93. Epitaxial nucleation and growth mechanism of III-V compound semiconductors.
N. Gopalakrishnan, R.S. Qhalid Fareed and R. Dhanasekaran
J. of Indian Institute of Sciences 76 (1996) 15-21.

94. Evaluation of composition and growth rate of $Ga_xIn_{1-x}P$ vapour phase epitaxy
N. Gopalakrishnan and R. Dhanasekaran
Materials Chemistry and Physics 45 (1995) 15-21.

95. Investigations on the two dimensional nucleation and growth kinetics of InP vapour phase epitaxy.
N. Gopalakrishnan, R. Dhanasekaran and P. Ramasamy
J. Crystal Growth 137 (1994) 235-239.

96. Vibrational transition probability and dissociation energy data for AsN molecule
N. Rajamanickam, R.N. Senthilkumar, S. Ganesan, **N. Gopalakrishnan,**
J. Rajkumar, V. Jegadesan and C. Dhandapani.
Acta Physica Hungarica 70 (1991) 71-76.

No. of Post Graduate (M.Sc) Projects Completed 30)			
Sl. No	PG Project title	Name and year	Course
1	Ag-doped ZnO thin films for spintronics application by RF sputtering	Richa Bharti April 2022	M.Sc
2	Defect related luminescence of Zn doped ZrO_2 nanostructures for phosphor converted WLED applications	Vaishnavi Verma April 2022	M.Sc
3	Effect of Cr Doping on Room Temperature Gas Sensing Properties of β-Ga_2O_3	Shyam Narayan Sarkar May 2021	M.Sc
4	Fabrication of Metal Oxide Semiconductor/ Transition Metal Chalcogenides (MOS/TMC) Heterostructure CO_2 Sensor by R.F.Magnetron Sputtering.	Bikram Mondal June 2020	M.Sc
5	Synthesis and Characterization of SnO_2 Nanostructures for Phosphor Converted WLED	Prasad. M June 2020	M.Sc
6	Surface modification of R.F.sputtered NiO thin films by Ag and GO for NH_3 sensing	Kavyakala C May 2019	M.Sc
7	Fabrication of p-ZnO:Ag/n-ZnO homojunction by R.F. Magnetron sputtering.	A. Muhil May 2019	M.Sc
8	Synthesis and Characterization of n-Type ZnSe and conversion to p- type by doping	Aashna Praveen May 2018	M.Sc
9	Enhancement of Ferromagnetism in Vanadium doped ZnO thin films by Thiol functionalization	Shivam Kumar May 2018	M.Sc
10	Synthesis and Characterization of ZnSe by Hydrothermal and Solvothermal Methods.	Lakshmi Harikumar May 2017	M.Sc
11	Growth of Cr doped ZnO Thin films by R.F Sputtering and Surface functionalization for Spintronics Application	R.Varsha May 2017	M.Sc
12	Enhancement of room temperature ferromagnetism in Mn doped ZnO thin film by RF Magnetron sputtering	Shana C P May 2016.	M.Sc
13	Synthesis of CuO nanoparticles and CuO-MnO2 Nanocomposite for gas sensing Applications	Seethal Pappachan May 2016	M.Sc
14	Effect of Buffer layer thickness for solar cell Applications	K.Vivekanandhan May 2015	M.Sc
15	Synthesis of ZnO, CuO Nanostructures and ZnO-CuO Nanocomposites for Gas sensing Applications	Naga Karthick K May 2015	M.Sc
16	Fabrication of thin film hetero-junction for solar cell applications	Seena Mathew May 2014	M.Sc
17	Magnesium doped Aluminum Nitride for spintronics application	Ranjith Kumar.P May 2014	M.Sc
18	Synthesis and characterization of perovskite type $lafeo_3$ multiferroics	R.Prasanna perumal May 2013	M.Sc

19	Synthesis of Al doped ZnO for solar cell Applications	R.Ramamoorthy May 2013	M.Sc
20	Synthesis of CuO nanorods for gas sensing Applications	S.Bhuvaneshwari May 2012	M.Sc
21	Substrate and thickness dependence of ferromagnetism in Mn doped ZnO films grown by RF magnetron sputtering	A.Brinda May 2011	M.Sc
22	Fabrication of *p*-CuO/*n*-ZnO Hetrojunction for Gas Sensing Applications	Arunkumar.B May 2011	M.Sc
23	Role of oxygen vacancies on $Zn_{1-x}Cr_xO$ thin films grown by RF sputtering	M.Suganya May 2010	M.Sc
24	Fabrication and Characterization of OLED	Devidas T.R May 2010	M.Sc
25	Effect of Substrate and Thickness on ZnO Thin Films Grown by RF Magnetron Sputtering	K.Latha May 2009	M.Sc
26	Fabrication of p-n Junction Using Zinc Oxide by RF Magnetron Sputtering	V.Senthamizh Pavai May 2009	M.Sc
27	Growth and characterization of Al doped ZnO (AZO) thin film by R.F. Magnetron sputtering	S.Gowrishankar May 2008	M.Sc
28	Structural and optical properties of Al doped ZnO thin films prepared by R.F magnetron Sputtering	J.Kabilan May 2008	M.Sc
29	Fabrication of Al doped ZnO (AZO) films by thermal evaporation	B.Chandrababu May 2007	M.Sc
30	Growth and characterization of Al doped ZnO (AZO) thin films by thermal evaporation	K.Ananth May 2007	M.Sc

No. of Post Graduate (M.Tech) Projects Completed (21)

Sl.No	Project title	Name and year	Course
1	Development of novel ultrasonic waveguide sensor using non-leaky waves for skin temperature measurement	Athul Sharma May 2022	M.Tech
	Inspection of corrosion under insulation (CUI) using ultrasonic waveguide temperature measurement sensor	Akash Sahebrao Tathe May 2022	M.Tech
2	Inspection of corrosion under insulation (CUI) using ultrasonic waveguide temperature measurement sensor	Akash Sahebrao Tathe December 2021	M.Tech
	Development of novel ultrasonic waveguide sensor with non-leaky waves for multipoint temperature measurement	Athul Sharma December 2021	M.Tech

3	Detection of defects in the fabricated tubular joint and their comparative study using RTR Image Intensifier vs Flat Panel Detector	Lenka Bhargavi December 2020	M.Tech
	Non-Destructive Evaluation of Induction Pressure welded joints using RT	Lenka Bhargavi May 2021	M.Tech
4	Reflection study of shear horizontal (sh1) wave modes with plate edge at different incident angles	Aravinth. R June 2020	M.Tech
	Refelection study of Shear Horizontal wave modes with Bevelled Plate Edges	Aravinth. R December 2019	M.Tech
5	Comparison between equipment generated DGS and theoretically drawn DGS.	Vignesh K May 2019	M.Tech
	Inspection of Longitudinal weld in Pipe and circumferential welds by time of flight diffraction technique (TOFD)	Vignesh K December 2018	M.Tech
6	Guided wave ultrasonic testing for the rods of coke oven battery	Joydwipkarmakar May 2018	M.Tech
	Guided wave ultrasonic testing for the rods of coke oven battery	Joydwipkarmakar December 2017	M.Tech
7	Defect Characterisation in Magnesium Alloy (AZ31) plate using Pulsed Thermography.	Pramesh Vikram May 2017	M.Tech
	Defect Analysis of Butt welded joint of structural Steel (IS-2062), Stainless Steel (SAE-304) and STBW T91 alloy using immersion Ultrasonic Testing.	Pramesh Vikram December 2016	M.Tech
8	Development and Validation of UT-RAY Tracing software for flat and curved surface.	Rohit Kumar Agrawal May 2017	M.Tech
	Effect of Radiographyc Parameters on image quality tools in digital Radiography.	Rohit Kumar Agrawal December 2016	M.Tech
9	Defect size measurement using Radiographic technique, A comparison with time of flight diffraction method.	Manas Mishra May 2016	M.Tech
	Advanced Ultasonic ray trace.	Manas Mishra December 2015	M.Tech
10	Electromagnetic Non-Destructive Evaluation of Residual Stress in Shot Peened Low Carbon Steel Subjected to fatigue.	Subhash Koner May 2015	M.Tech
	Evaluation of Residual Stress and High Cycle Fatigue in Low Carbon Steel through Electromagnetic Non-Destructive Techniques.	Subhash Koner December 2014	M.Tech

11	Multi frequency approach for accurate thickness measurement of steam generator tubes at grooves using remote field eddy current technique.	Manu Josheph May 2015	M.Tech
	Development and Sensitivity Assessment of Multi-frequency Remote field Eddy Current Technique.	Manu Josheph May 2014	M.Tech
12	Study of post weld heat treatment effect on magnetic and microstructural behavior of 9Cr-1Mo steel weldment	Shaik shahazad May 2014	M.Tech
	Modeling of magnetic surface probe using JMAG software and application of magnetic methods for characterization of boiler tubes	Shaik shahazad Dec. 2013	M.Tech
13	Characterization of thermal barrier coating speicamen using thermography technique	Nidheeshkumar.B May 2013	M.Tech
	Characterization of thermal barrier coating specimen using thermography technique	Nidheeshkumar.B Dec. 2012	M.Tech
14	Detection and quantification of defects in concrete structures using digital x-ray radiography	Sajith S.G. May 2012	M.Tech
15	Detection and quantification of defects in concrete structures using digital x-ray radiography	Sajitha S.G. Dec. 2011	M.Tech
16	Deftect detection in concrete blocks using impact –echo technique	Chandramouli Patoju May 2011	M.Tech
	Defect detection in concrete blocks using impact –echo technique	Chandramouli Patoju Dec.2010	M.Tech
17	Transmittance characdteristics and amplification of acoustic emission siganls during tensile deformation of mild steel	Shiva krishna L May 2010	M.Tech
	Transfer function characteristics of acoustic emission during tensile deformation of mild steel	Shiva krishan. L Dec.2009	M.Tech
18	Opitmization of ground penetrating radar system parameters for nondestructive detection of rebars in concrete structures (Phase –I & phase II)	Shareef Shaik Dec. 2009 & May 2010	M.Tech
19	Characterisation of solution annealing behaviour of modified 9Cr-1Mo steel by magnetic nde techniques	Jagannadham Parikala May 2011	M.Tech
	Characterization of microstucture of mod.9Cr-1Mo steell using magnetic Barkhausen emission technique	Jagannadham Parikala Dec 2010	M.Tech

20	Higher order guided waves : an optimization study (Phase –I & phase II)	Venkataro Burri Dec. 2008 & May 2009	M.Tech
21	Magnetostrictstive sensor for structural health monitoring of plate like structures	Jojalah Gundiga May 2009	M.Tech
	Generating and detecting guided waves in platet like structures using magnetostrictive sensor	Jojalah Gundiga Dec 2008	M.Tech

Conference Publications

Papers Published /Presented/ Participated in the International Conferences

1. Morphology dependent room temperature CO_2 sensing of β-Ga_2O_3.

   P.Rekha and **N.Gopalakrishnan**

   "International Conference on Novel Engineering Materials for Biomedical, Energy, Environment, Sensing and Other Applications (ICON-BEES 21)" held at NIT-Tiruchirappalli during 11-13 March 2021.

2. Enhancement of Ferromagnetism in Amine functionalized Mn doped ZnO thinfilm
   Sivanantham Nallusamy and **Gopalakrishnan Nammalvar**
   International Conference on MAGnetic Materials and Applications (ICMAGMA) held at NISER, Bhuvaneswar, India during 09 -13 December 2018.

3. Thiol functionalized V doped ZnO films for Magnetic storage device Application
   Sivanantham Nallusamy and **Gopalakrishnan Nammalvar**
   International Conference on Sustainable Energy Technologies (i-SET 2018) held at Bharathidasan University, Tiruchirappalli , India during 27-28 June 2018.

4. Y^{3+} incorporated ZnO thin film grown by RF magnetron sputtering for optoelectronic applications.
   E. Vinoth and **N. Gopalakrishnan**
   International Conference on Sustainable Energy Technologies (i-SET 2018) held at Bharathidasan University, Tiruchirappalli, India during 27-28 June 2018.

5. Organic Ligands Induced Ferromagnetism in Ni doped ZnO films
   Sivanantham Nallusamy and **Gopalakrishnan Nammalvar**
   Intermag 2018 held at Marina Bay Sands Convention Center, Singapore during April 23-27, 2018.

6. Thiol Functionalied Cr doped ZnO films for enhanced ferromagnetism
   Gopalakrishnan Nammalvar, Sivanantham Nallusamy and Varsha Ravichandran
   4th International Conference on Nano Science and Nanotechnology (ICONN 2017) held at SRM University, Chennai, during 9-11 August 2017.

7. Fabrication of Thiol functionalized Ni doped ZnO thin films
   Sivanantham Nallusamy and **N. Gopalakrishnan,**
   2017-IEEE Magnetics summer school, Santander, Spain, July19-23,2017

8. Antibacterial Study on GO incorporated PSF/PVP Mixed matrix membrane for Water Purification,
   Pramila P and **N. Gopalakrishnan**
   International Conference on Nano for Energy and Water 2017 and Indo-French Workshop on Water Networking, University of Petroleum and Energy Studies, Dehradun, India, Feb 22-24, 2017.

9. Enhancement of ferromagnetism in Thiol functionalized Mn doped ZnO thin films, N. Sivanantham and **N. Gopalakrishnan**,
International Conference on Magnetic Materials and Applications, DMRL and Magnetic Society of India, Hyderabad, Feb 01-03, 2017

10. Metal Oxide Semiconductors for Gas Sensing Application
Vinoth RAJ, Bhuvaneshwari S, **Gopalakrishnan Nammalvar**
ICEM16-A-0916, Suntec Singapore,04th to 08th July, 2016.

11. Synthesis and Characterisation of ZnO Hierarchical Nanoflowers, Multi-linked and High Aspect Nanorods (ICMAT13-A-2150)
R.N. Lokesh, L. Balakrishnan, K. Jeganathan and **N. Gopalakrishnan**
7thInternational Conference on Materials for Advanced Technologies, Suntec Singapore, 30 June -5 July 2013

12. Synthesis and Gas Sensing Properties of CuO Nanorods (ICMAT13-A-2168)
N. Gopalakrishnan, S. Bhuvaneshwari andL. Balakrishnan.
7th International Conference on Materials for Advanced Technologies, Suntec Singapore, 30 June -5 July 2013

13. Optimization of anodic layer and fabrication of organic light emitting diode.
N. Gopalakrishnan, S. Gowrishankar, T.R. Devidas and L. Balakrishnan
2nd International Conference on Key Engineering Materials (ICKEM 2012), Singapore, February 2012.
Advanced Materials Research, Vols. 488-489 (2012) 1348-1352

14. Fabrication of *p*-ZnO thin films by ZrNcodoping.
S. Gowrishankar, L. Balakrishnan and **N. Gopalakrishnan**
SPIE Optics+Photonics 2012, San Diego, USA, August 2012
Proceedings of SPIE, Vol. 8484(2012) 84840W-1-84840W-6.

15. Fabrication of ZnOhomojunction by Al-As-N tridoping.
L. Balakrishnan, S. Gowrishankar and **N. Gopalakrishnan**
International Semiconductor Device Research Symposium 2011 (ISDRS 2011), University of Maryland, Maryland, USA, December 2011(IEEE Xplore).
DOI: 10.1109/ISDRS.2011.6135234

16. Realization of *n*-ZnO:Ga/*p*-ZnO:GaPhomojunction by RF magnetron sputtering.
S. Gowrishankar, L. Balakrishnan, T. Balasubramanian and **N. Gopalakrishnan**
International Semiconductor Device Research Symposium 2011 (ISDRS 2011), University of Maryland, Maryland, USA, December 2011(IEEE Xplore).
DOI: 10.1109/ISDRS.2011.6135308

17. Effects of oxygen partial pressure on $Zn_{0.95}Cr_{0.05}O$ thin films grown by RF sputtering.
N. Gopalakrishnan, L. Balakrishnan, M. Suganya, S. Gowrishankar and G. Jayalakshmi
International Conference on Nanoscience and Nanotechnology (ICNN 2011), Coimbatore Institute of Technology, Coimbatore, India, July 2011.

18. Dual codoping for the fabrication of low resistive *p*-ZnO.
    L. Balakrishnan, S. Gowrishankar, J. Elanchezhiyan, B.C. Shin, T. Balasubramanian and **N. Gopalakrishnan**
    The 16th International Conference on Crystal Growth (ICCG-16), Chinese Academy of Sciences, Beijing, China, August 2010.

19. Fabrication of *p-n* junction with ZnO nanostructures by a novel approach.
    L. Balakrishnan, S. Gowrishankar, T. Balasubramanian and **N. Gopalakrishnan** International *Conference on "Synthesis, Characterization Consolidation and Modelling of Nanomaterials" (ICON-2010), PSG College of Technology, Coimbatore, March 2010.*

20. Vacancy mediated ferromagnetism in $Zn_{0.85}Mn_{0.15}O$ nanostructures.
    L. Balakrishnan, G. Jayalakshmi, B. Srimathy, M. Senthilkumar, T. Balasubramanian and **N. Gopalakrishnan**
    International Conference on "Synthesis, Characterization Consolidation and Modelling of Nanomaterials" (ICON-2010), PSG College of Technology, Coimbatore, March 2010.

21. Dual codoping for the fabrication of low resistive *p*-ZnO
    L.Balakrishnan, S.Gowrishankar, J.Elanchezhiyan, B.C.Shin, T.Balasubramanian and **N.Gopalakrishnan**
    The 16th International Conference on Crystal Growth (ICCG-16) held at Beijing, China during Aug. 8-13, 2010.

22. Fabrication of *p-n* junction with ZnO nanostructures by a novel approach
    L.Balakrishnan, S.Gowrishankar, T.Balasubramanian and **N.Gopalakrishnan**
    Internation Conference on "Synthesis, Characterization Consolidation and Modelling of Nanomaterials" (ICON-2010) held at PSG College of Technology, Coimbatore during Mar. 5-6, 2010.

23. Vacancy mediated ferromagnetism in $Zn_{0.85}Mn_{0.15}O$ nanostructures
    L.Balakrishnan, G.Jayalakshmi, B.Srimathy, M.Senthilkumar, T.Balasubramanian and **N.Gopalakrishnan**
    Internation Conference on "Synthesis, Characterization Consolidation and Modelling of Nanomaterials" (ICON-2010) held at PSG College of Technology, Coimbatore during
    Mar. 5-6, 2010.
24. Participated in "International Conference on Experimental Condensed Matter Physics", IIT- Bombay, Mumbai, India, Jan. 8-10, 2007.

25. ZnO based diluted magnetic semiconductor thin films by RF magnetron sputtering for spin photonic devices
    J. Elanchezhiyan, K. P. Bhuvana, **N. Gopalakrishnan** and T. Balasubramanian
    Proc. SPIE. 6674 (2007) 66740C-66746C.

26. A novel approach for development of co-doped ZnO semiconductor film bypulsed laser deposition and R.F.Sputterring**.**
    N.Gopalakrishnan, B.C.Shin, K.P.Bhuvana, J.Elanchezhiyan and T.Balasubramanian
    *Proceeding of 5th International conference on 'Trends in Industrial measurements and Automation -TIMA-2007' Jan.2007,NIT, Tiruchirapalli, India. pp.97-101***.**

27. ZnO films grown by pulsed laser deposition.
N.Gopalakrishnan, B.C.Shin, H.S.Lim, G.Y.Kim ,J.Kumar, T.Balasubramanianand Y.S.Yu.
Proceedings of the "International workshop on Crystal Growth and Characterization of Advanced Materials", Anna University, Chennai, Jan. 2006, pp.336-344.

28. (Ga+N) Codoping in ZnO by Laser ablation
N.Gopalakrishnan, K.P.Bhuvana, J.Elanchezhiyan,B.C.Shin,H.S.Lim, T.Balasubramanian, J.Kumar and Y.S.Yu.
International Conference on Nanoscience and Technology held at University of Madras, Chennai, during 26 – 28 Aug 2006.

29. Fabrication of GaN doped ZnOnanocrystallines by Laser ablation
N.Gopalakrishnan, B.C.Shin, K.P.Bhuvana, J.Elanchezhiyan and T.Balasubramanian
International conference on Advanced Nanomaterials 2007 to be held at Indian Institute of Technology Bombay, Mumbai during 8-10 Jan.2006.

30. Red Shift of NBE in Triple CodopedZnO by Pulsed Laser Deposition
N.Gopalakrishnan, H.S.Lim, J.Y.Sohn, Sun Yoon, Taeheo Lee, Beomee Kim andY.S.Yu
Korean Physical Society Meetings, Seoul, April 21-23, 2005

31. Growth of ZnO:Ga, In, N by Pulsed Laser Deposition
J.Y.Sohn, **N.Gopalakrishnan,**H.S.Lim, B.I. Kim, SeunghwanLee,Yeunkju Lee and Y.S.Yu
Korean Physical Society Meetings, Seoul, April 21-23, 2005

32. Comparison of ZnO:GaN films on Si(111) and Si(100) substrates by pulsed laser deposition
N.Gopalakrishnan, B.C.Shin, H.S.Lim, G.Y.Kim and Y.S.Yu
ICDS-23, Awaji Island, Hyogo, Japan, July 24-29, 2005

33. Growth of ZnO:BN by Pulsed Laser Deposition
N.Gopalakrishnan,H.S.Lim and Y.S.Yu
11th International Meetings on Ferroelectricity, Foz do Iguacu, Brazil, Sept.5-9, 2005.

34. Improvement of ZnO Properties by Triple Codoping in Pulsed Laser Deposition
N.Gopalakrishnan, H.S.Lim and Y.S.Yu
11th International Meetings on Ferroelectricity, Foz do Iguacu, Brazil, Sept.5-9, 2005.

35. A Novel approach to ZnO by PLD
N.Gopalakrishnan,J.Y.Sohn ,H.S.Lim, B.I. Kim andY.S.Yu
3rd International Workshop on ZnO and Related Materials.Sendai, Japan, October 6-8, 2004

36. Optical Characterisation of GaAs:Si/Si Grown by Molecular Beam Epitaxy(MBE)
N.Gopalakrishnan
14th International Conference on Crystal Growth, 9-13 August 2004, Grenoble, France.

37. Tri-doped (Ga, In, n) ZnO by Pulsed Laser Deposition
J.Y.Sohn, **N.Gopalakrishnan,**H.S.Lim, B.I. Kim andY.S.Yu
3rd International Workshop on ZnO and Related Materials.Sendai, Japan, October 6-8, 2004

38. Band gap engineering of ZnO thin films prepared by pulsed Laser deposition
B.I.Kim**, N.Gopalakrishnan,**H.S.Lim ,J.Y.Sohn and Y.S.Yu
3rd International Workshop on ZnO and Related Materials.Sendai, Japan, October 6-8, 2004.

39. Anisotropy behaviour in InP Selective Regrowth by Hydride Vapour PhaseEpitaxy
N.Gopalakrishnan, E.R.Messmer and S.Lourdudoss.
18th Nordic Semiconductor Meeting, Linkoping University, Linkoping, Sweden.

40. Effect of Buffer layer thickness on morphology and optical property of GaAs/Si by MBE.
N.Gopalakrishnan, K.Baskar, H.Kawanami and I.Sakata
14th American Conference on Crystal Growth and Epitaxy to be held at Seattle USA during 4-9 August 2002.

41. Rapid Epitaxial Growth of Conducting and Insulating III-V Compounds on (001), (110), (111)A, (311)A and (311)B Surfaces by HVPE.
S.Lourdudoss**, N.Gopalakrishnan**, H.Holtz, M.Deschlerand R.Beccaed
TMS International Symposium on Value-Addition Metallurgy, San Antonia, Texas, USA, Feb.1998.

42. Nucleation mechanism in Vapour Phase Epitaxial Growth of binary, ternary and quaternary semiconductors
N.Gopalakrishnan and R.Dhanasekaran
Proceedings of 14th International Conference on Nucleation and Atmospheric Aerosols, Helsinki, 26 - 30 August 1996.
Nucleation and Atmospheric Aerosols 1996, pp.149-152.

43. Growth kinetics of vapour phase peitaxial growth of $Ga_{1-y}In_yAs_{1-x}P_x$ compounds
N.Gopalakrishnan R.Dhanasekaran and P.Ramasamy
Eighth International Conference on Vapour Growth and Epitaxy (ICVGE-8), Albert LudwigsUniversitat, Germany. July 24-29, 1994.

44. Investigations on the Nucleation and growth kinetics of $InAs_{1-x}P_x$ vapour Phase epitaxy
N.Gopalakrishnan, R.Dhanasekaran and P.Ramasamy
IUMRS International Conference on Electronic Materials, Hsinchu, Taiwan, Dec.19-22, 1994

45. Growth Kinetics of $Ga_{1-y}In_yAs_{1-x}P_x$ quaternary compound semiconductor thin film by vapour phase epitaxial growth.
N.Gopalakrishnanand R.Dhanasekaran
Seventh international conference on solid films and surfaces, Hsinchu, Taiwan, Dec.19-22, 1994.

46. Investigations on the epitaxial growth of compound semiconductors
N.Gopalakrishnan, R.S.Q.Fareed, R.Jothilingam, S.Moorthy Babu, R.Dhanasekaran and P.Ramasamy
Faraday Society, "General Discussion 95 Crystal Growth", Univ. of Strcthclyde, U.K, April 14-16, 1993.

47. Investigations on the two dimensonal nucleation an growth kinetics of InP VapourPhase epitaxy
N.Gopalakrishnan, R.Dhanasekaran and P.Ramasamy
Ninth American Conference on Crystal Growth (ACCG-9), Baltimore,Maryland, U.S.A, Aug.1-6, 1993.

48. On the Nucleation, Growth and Characterisation of KDP-ADP mixed crystal
K.Srinivasan, G.Ravi, **N.Gopalakrishnan**, S.Anbukumar R.Dhanasekaran and P.Ramasamy
Eighth international meeting on Ferroelectricity, NIST, Gaithersburg, Maryland, U.S.A, Aug.8-13, 1993.

Papers Published (Proceedings) /Presented/Participated in the National Conferences

1. Development of Nove Ultrasonic wave guide sensor with non-leaky waves for multipoint temperature measurements.
Atul Sharma, N.Gopalakrishnan, Mitra gupta, Krishnan Balasubramanian and Nishanth Raja.
Virtual Conference and Exhibition on Non-Destructive Evaluation (NDE-2021) held during 9-11 December 2021.

2. Inspection of Corrosion Under Insulation (CUI) using ultrasonic guided waves Temperature sensors.
Akash Thathe, **N.Gopalakrishnan,** A.Hankare, N.Raja and Krishnan Balasubramanian
Virtual Conference and Exhibition on Non-Destructive Evaluation (NDE-2021) held during 9-11 December 2021.

3. Integrated Problem Solving Environment for HPC and Cloud Computing Platforms
Arunachalam B, Manavalan and **N. Gopalakrishnan**
Third International Conference on Smart Systems and Inventive Technology (ICSSIT 2020), Tirunelveli, India, August 20-22, 2020

4. Y doped ZnO Interdigitated Electrode (IDE) ammonia sensor fabricated by sputtering
E. Vinoth and **N. Gopalakrishnan,**
64th DAE Solid State Physics Symposium, IITJ, Jodhpur, December 18-22, 2019.

5. Reflection study of shear horizontal wave modes with beveled plate edges
R. Aravinth, Nived Suresh, **N. Gopalakrishnan** and Krishnan Balasubramanian
National Conference and Exhibition on Non-Destructive Evaluation (NDE-2019), Bangalore, December 05-07, 2019.

6. Effect of Temperature on NH_3 Sensing by ZnO: Mg Thin Film Grown by Radio Frequency Magnetron Sputtering Technique,
E. Vinoth and **N. Gopalakrishnan,**
62nd DAE Solid State Physics Symposium, DAE Convention Centre, Bhabha Atomic Research Centre, Mumbai, December 26-30, 2017.

7. Effects of ZnO incorporation on PSF-PEG mixed matrix membrane ,
   P. Pramila and **N. Gopalakrishnan**,
   62nd DAE Solid State Physics Symposium, DAE Convention Centre, Bhabha Atomic Research Centre, Mumbai, December 26-30, 2017.
8. CuO Mesostructures as Ammonia Sensors
   S.Bhuvaneshwari and **N. Gopalakrishnan,**
   62nd DAE Solid State Physics Symposium, DAE Convention Centre, Bhabha Atomic Research Centre, Mumbai, December 26-30, 2017.

9. Effect of Bufferlayer thickness for Solar Cell Application, Chennai Nano gathering – 2017,
   Vinoth E, Vivekanandhan K and **Gopalakrishnan N**
   National Conference on Nanomaterials and Nanobiotechnology NCNSNT, University of Madras, Feb 07 -08, 2017

10. Free Standing CuO-MnO_2 Nanocomposite for Room Temperature Ammonia Sensing
    Bhuvaneshwari, S., Seethal Papachan, **N. Gopalakrishnan**
    61th DAE Solid State Physics Symposium. DAE-KIIT, Bhuvaneswar, Odisha, India. Dec 26 - 30, 2016

11. Diffusion Kinetics and Methanol Sensing of ZnO:Thin Film Fabricated by RF Magnetron Sputtering
    Vinoth, and N.Gopalakrishnan
    6th Interdisciplinary Symposium on Material Chemistry held at DAE-BARC, Mumbai, India during Dec 6 to 10, 2016

12. Effect of radiographic parameters on image quality of the X-ray system in digital Radiography
    Rohik K.Agrawal, Sheri George and **N.Gopalakrishnan**
    26th National Seminar & International Exhibition on Non-Destructive Evaluation. Thiruvananthapuram, December 15-17 2016.

13. Analysis of defect in butt weld of T91 alloy using ultrasonic C-scan testing and Thermography.
    Pramesh Vikram and **N.Gopalakrishnan**
    26th National Seminar & International Exhibition on Non-Destructive Evaluation, Thiruvananthapuram, December 15-17 2016.

14. Room temperature ammonia and VOC sensing properties of CuO nanorods. Bhuvaneshwari, S., and **Gopalakrishnan, N.**
60th DAE Solid State Physics Symposium. Amity University Noida, UP December 25-29, 2015.

15. Study of Defects in Friction Stir Welded Dissimilar Aluminium Sample by Using Ultrasonic C Scan.
Angad Acharya, M. Ashok and **N. Gopalakrishnan**
National Seminar and exhibition on Non-Destructive Evaluation: 26-28 Nov.2015, Hyderabad, India.

16. Defect Detection and Quantification with Advanced Ultrasonic Aniket Kumar Tiwary, M. Ashok and **N. Gopalakrishnan**
National Seminar and exhibition on Non-Destructive Evaluation: 26-28 Nov.2015, Hyderabad, India.

17. Multi-Frequency Approach for Accurate Thickness Measurement Of Steam Generator Tubes At Grooves Using Remote Field Eddy Current Technique
Manu Joseph, S. Thirunavukkarasu and **N. Gopalakrishnan**
National Seminar and exhibition on Non-Destructive Evaluation: 26-28 Nov.2015, Hyderabad, India.

18. Evaluation of Residual Stress and High Cycle Fatigue in Low Carbon Steel through Electromagnetic Non-Destructive Techniques
Subash Koner, Ashis Kumar Panda, **N. Gopalakrishnan**, Amitava Mitra
National Seminar and exhibition on Non-Destructive Evaluation: 4-6 Dec.2014, Pune, India.

19. Multi-Frequency Approach for Accurate Thickness Measurement Of Steam Generator Tubes using Remote Field Eddy Current Technique
Manu Joseph, S. Thirunavukkarasu and **N. Gopalakrishnan,** B.P.C. Rao, C.K. Mukhopadhyay and T. Jayakumar
National Seminar and exhibition on Non-Destructive Evaluation: 4-6 Dec.2014, Pune, India.

20. Realization of low resistive *p*-ZnO thin film by Al-As codoping.
L. Balakrishnan, S. Gowrishankar and **N. Gopalakrishnan**
Department of Atomic Energy- Solid State Physics Symposium (DAE - SSPS 2011), SRM University, Chennai, India, December 2011(AIP Conference Proceedings).
AIP Conf. Proc. 1447 (2012) 763-764

21. Structural, electrical and optical properties of GaPcodopedZnO thin films.
S. Gowrishankar, L. Balakrishnan and **N. Gopalakrishnan**
Department of Atomic Energy- Solid State Physics Symposium (DAE - SSPS 2011), SRM University, Chennai, India December 2011(AIP Conference Proceedings).
AIP Conf. Proc. 1447(2012) 771-772

22. AlN doped (Codoped) ZnO films for the fabrication of *p*-ZnO.
L. Balakrishnan, J. Elanchezhiyan, K.P. Bhuvana, T. Balasubramanian and **N.Gopalakrishnan**
38th National Seminar on Crystallography (NSC-38), University of Mysore, Karnataka, India, February 2009.

23. Effect of thickness and substrate on ZnO thin films by RF sputtering.
K. Latha, L. Balakrishnan, T. Balasubramanian and **N. Gopalakrishnan**
38th National Seminar on Crystallography, Mysore University, Karnataka, India, February 2009.

24. Influence of oxygen pressure on $Zn_{1-x}Mn_xO$ thin films by RF sputtering.
B. Srimathy, L. Balakrishnan, J. Elanchezhiyan, T. Balasubramanian and N.Gopalakrishnan
38th National Seminar on Crystallography, Mysore University, Karnataka, India, February 2009.

25. Effect of thickness and substrate on ZnO thin films by RF sputtering
K. Latha, L. Balakrishnan, T. Balasubramanian and **N. Gopalakrishnan**
38th National Seminar on Crystallography, Mysore University, Mysore, India, Feb. 11-13, 2009.

26. Influence of oxygen pressure on $Zn_{1-x}Mn_xO$ thin films by RF sputtering Srimathy, L. Balakrishnan, J. Elanchezhiyan,T. Balasubramanian and N. Gopalakrishnan
38th National Seminar on Crystallography, Mysore University, Mysore, India, Feb. 11-13, 2009.

27. AlN doped (Codoped) ZnO films for the fabrication of p-ZnO
L.Balakrishnan, J.Elanchezhiyan, K.P.Bhuvana, T.Balasubramanian and **N.Gopalakrishnan**
National Seminar on Crystallography (NSC-38) held at University of Mysore, Karnataka during Feb. 11-13, 2009.

28. Participated in "Intellectual Property Rights Seminar" Tiruchirappalli, India, Jan. 9, 2009.

29. Participated in "Traditional and Emerging NDE methods for Managers and Engineers", IIT-Madras, Chennai, India, Feb. 20-21, 2009.

30. Participated in "National seminar & Exhibition on Non Destructive Evaluation-NDE 2009", BHEL & NIT, Tiruchirappalli, India, Dec.10-12,2009.

31. Participated in "Indo-US workshop on Visible and Ultraviolet sources for Solid state Lighting and Water Purification", Crystal Growth Center, Anna University, Chennai, India, Jan. 5-7, 2009.

32. Participated in "Non Destructive Evaluation-NDE 2008", Lonavala, India, Dec. 1-3, 2008.

33. Substrates effects on GaN doped ZnO films grown by Pulsed Laser Deposition.
N.Gopalakrishnan, B.C.Shin, H.S.Lim, G.Y.Kim ,J.Kumar and Y.S.Yu
National Symposium on Crystal Growth and Characterisation, Loyola College, Chennai, Sept.29-30, 2005.

34. Growth of ZnO using codoping and triple codopingmethod by Pulsed laser deposition.
N.Gopalakrishnan, B.C.Shin, H.S.Lim, J.Kumar, T.Balasubramanian and Y.S.Yu *Second National Symposium on Crystal Growth of Laser related materials SSN college of Engineering, Kalavakam, India, December 19-20, 2005.*

35. Vapour Phase Epitaxial Growth of $Ga_xIn_{1-x}As$
N.Gopalakrishnan and R.Dhanasekaran
National Conference on fundamentals of Crystal Growth, Crystal Growth Centre, AnnaUniversity, Chennai, India, Jan.29-30, 1996.

36. Investigation on the Nucleation and Growth Kinetics of Vapour Phase EpitaxialGrowth of III-V Binary, Ternary and Quaternary Compound Semiconducors-Thesis Presentation.
N.Gopalakrishnan and R.Dhanasekaran
DAE Solid State Physics Symposium, BARC, Bombay, Dec.27-31, 1996.

37. Thermodynamic analysis of $Ga_xIn_{1-x}P$ Vapour Phase Epitaxy
N.Gopalakrishnan and R.Dhanasekaran
Sixth National seminar on Crystal Growth, Anna Univeristy, Chennai, Feb.2-4, 1995

38. Vapour Phase Epitaxial Growth of $Ga_xIn_{1-x}Sb$
N.Gopalakrishnan and R.Dhanasekaran
National Conference on Recent Advances in Semiconductor, Indian Institute of Technology, New Delhi, June 20-22, 1995.

39. Vapour Phase Epitaxial Growth of $Al_xGa_{1-x}As$
N.Gopalakrishnan and R.Dhanasekaran
National seminar on emerging trends thin film technology and device fabrication, Cochin University of Science and Technology, Cochin, India, Nov.27-29, 1995.

40. Investigations on the initial stages of the Vapour Phase Epitaxal Growth of $Ga_xIn_{1-x}P$ compound semiconductors
N.GopalakrishnanR.Dhanasekaran and P.Ramasamy
Material Research Society of India, Hyderabad, Feb.1994.

41. Nucleation and Growth kinetics of $Ga_{1-y}In_yAs_{1-x}P_x$ by VPE and oxide precipitates in CZ silicon
N.Gopalakrishnan,H.R.Dizasi, R.Dhanasekaran and P.Ramasamy
INDO-US workshop on Nucleation and Growth, Indian Institute of Sciences, Bangalore, March 14-16, 1994.

42. Growth Kinetics of $GaAs_{1-x}P_x$ Vapour Phase Epitaxy
N.Gopalakrishnan and R.Dhanasekaran
Proc. of Fifth National Seminar on Crystal Growth, Anna University, Chennai, Nov.18-20, 1993.

43. Nucleation and Growth Kinetics of $InAs_{1-x}P_x$ Vapour Phase Epitaxy
N.Gopalakrishnan and R.Dhanasekaran
XXV National seminar on Crystallography, Dept. of Bio-physics and Crystallography, Univ. of Madras, Dec.15-17, 1993.

44. Nucleation Kinetics of $Ga_xIn_{1-x}As$ compound during Vapour Phase Epitaxial Growth
N.Gopalakrishnan, R.Dhanasekaran and P.Ramasamy.
XXIII National Seminar on Crystallography, MREC, Jaipur, March 23-25, 1992.

45. Development of Growth Kinetics of InP thin films during Vapour Phase Epitaxy
N.Gopalakrishnan, R.Dhanasekaran and P.Ramasamy
XXIV National Seminar on Crystallography, Univ. Jammu, Oct.20-22, 1992.

Details of the Conferences organized (4)

1. Certificate Course on NDE Techniques during 01 - 05 June 2015 - ***Coordinator***

2. Workshop on Magnetic and Semiconductor Nanomaterials during 31 October to 01 November 2014 - ***Secretary***

3. Conducted Workshop on '**Advanced Coating Technologies and their Applications**' on 24 Jan. 2008. – ***Convener***

4. Conducted **'Workshop on Advances in Nanomaterials and Thin films (WANT-2013)'** during 08-09 March 2013. – ***Convener***