

# LT.CDR.DR.K.SRINIVASA RAO

## HEAD PHYSICS DEPARTMENT

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Government Degree College | Mandapeta-533 308 AP INDIA



### PROFESSIONAL SUMMARY

An accomplished senior lecturer with over 36 years of experience teaching undergraduate and postgraduate Physics courses. Renowned for a deep understanding of theoretical and applied Physics concepts and a passion for fostering student success through engaging teaching methodologies. Extensive research experience with a proven track record of publishing a significant number of high-impact journal articles in reputable scientific journals. Areas of expertise include ceramics, glasses and nano phosphors. Adept at supervising and mentoring students in research projects, dissertations, theses and internships. Demonstrates strong collaboration with interdisciplinary teams, contributing to the advancement of Physics research and education. Committed to continuous learning, curriculum development, and using innovative teaching tools to inspire the next generation Physicists.

### EDUCATION

·Ph. D. in Physics from Department of Physics, Sri Venkateswara University, Tirupati, A. P. November 2011 (Research Supervisor Prof. S. Buddudu).

Title of Research: Studies on development and characterization of BiNbO<sub>4</sub> ceramic powder and Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub>-LiF glass system and also their emission performance with the dopant transition metal or rare earth ions.

·M. Phil. Physics from School of Studies in Physics, Vikram University, Ujjain, M. P. during the year 1988 (Research Supervisor Prof. B D Shrivastava).

Title of Research: Synchrotron As A Source of White X-Ray Radiation For XAFS Spectroscopy.

·M. Sc. Physics with Electronics as specialization from Department of Physics, University Teaching Department, A. P. S. University, Rewa, M. P. during 1985-87.

·B. Sc. MPC with Physics as main from V.S.M. College, Ramachandrapuram affiliated to Andhra University Waltair, during the year 1985.

## WORK EXPERIENCE

### Teaching Experience:

·An accomplished educator with 36 years of teaching experience (1989 to till date) dedicated to mentoring and guiding students in higher education at a degree college.

### Naval NCC Officer:

·Served as a Naval NCC Officer for 28 years(1993-2021) at V.S.M. College(A), Ramachandrapuram, fostering leadership, discipline, and patriotism among cadets. Played a key role in shaping the character and careers of numerous cadets through training and guidance.

### Academic Leadership Roles:

·**Chairman, Board of Studies (Adikavi Nannaya University (2016 to till date) & V.S.M. College(A), Ramachandrapuram (2015-2021)**, led curriculum development and academic policy formation for an affiliated university, ensuring alignment with contemporary educational and professional demands.

·**Controller of Examinations at V.S.M. College(A) Ramachandrapuram (2016-2020)** successfully managed examination processes, upholding transparency, accuracy, and efficiency in evaluation systems.

·**Member Secretary, Academic Council (2015-2020) at V.S.M. College(A) Ramachandrapuram**, facilitated academic reforms and policy implementation for an autonomous degree college, ensuring the adoption of innovative practices to enhance educational standards.

### Research and Publications:

·Published 18 research papers in reputed national and international journals.

·Contributed 6 book chapters to esteemed academic publications.

### Conference Organization:

·Organized a 2-day International Conference on “Smart Materials and Advanced Application-2024” (ICSMA-2024) on 22-23 August 2024 that brought together researchers, academicians, and industry experts to discuss advancements in the field of smart materials. Published an ISBN book with 60 good research papers from the participants.

·Organized a 2 days National Conference Taken initiation to

·Organized a 2-day National Conference on “Recent Trends in Advanced Materials and Characterization (RTAMC-2020) during 29th& 30th of January 2020.to foster dialogue and collaboration among scholars and practitioners at the national level. Published a special issue of a UGC care listed journal namely “Journal of Information and Computational Science” for the RTAMC-2020 Conference with 22 Research Papers.

### Academic Contributions:

·Expertise in research, curriculum design, and educational administration.

·Committed to fostering a research-oriented academic environment and mentoring students and faculty in achieving academic excellence.

### Professional Values:

·A dedicated educator, researcher, and administrator with a focus on student development, institutional growth, and nation-building. Known for promoting discipline, leadership, and innovation in education.

## AWARDS

Awarded Honorary Rank “**Lt. Cdr. (NAVAL NCC)**” by the Honorable President of India during January 2024.

·Awarded “**Lifetime Achievement Award in Material Science**” by Scientific Laurels International Organization” during December 2024.

·**Chairman, Board of Studies in Physics**, Adikavi Nannaya University, Rajamahendravaram.

·Life Member, Indian Science Congress Association.

·Life Member, Indian Laser Association.

·Life Member, Indian Association of Physics Teachers

## RESEARCH PAPERS PUBLISHED

1. Structural, thermal and dielectric properties of BiNbO<sub>4</sub> ceramic powder Journal Ferroelectric Letters Section, Taylor & Francis, New York, USA 37 (6) (2010) 101–109.

2. Structural and emission characterization of RE<sup>3+</sup> (=Eu<sup>3+</sup>, Sm<sup>3+</sup> & Pr<sup>3+</sup>) doped BiNbO<sub>4</sub> ceramic powders, Proc. of Indian National Science Academy (Physical Sciences) Vol. 77, 4/Dec. 2011.

3. Emission Analysis of RE<sup>3+</sup> (= Nd<sup>3+</sup> & Er<sup>3+</sup>) Doped Bi<sub>2</sub>O<sub>3</sub>–B<sub>2</sub>O<sub>3</sub>–LiF Glass System American Institute of Physics Proceedings Jan. 2011. Pages 265–268.

4. Structural and Spectral Analysis Host Bi<sub>2</sub>O<sub>3</sub>–B<sub>2</sub>O<sub>3</sub>–LiF and RE<sup>3+</sup> (Ho<sup>3+</sup> or Pr<sup>3+</sup>): Bi<sub>2</sub>O<sub>3</sub>– B<sub>2</sub>O<sub>3</sub>–LiF Glasses IJESRT International Journal Of Engineering Sciences & Research Technology Vol. 3, Issue 11 Nov. 2014, 227–232.

5. Dielectric and Magnetic Properties of Cr<sup>3+</sup>, Mn<sup>2+</sup> & Fe<sup>3+</sup> Doped BiNbO<sub>4</sub> Ceramic Powders International Journal Of Innovative Research In Science, Engineering and Technology Vol. 3, Issue 12, December 2014, 1333–1340.

6. Dielectric Spectroscopy Studies on Lead Sodium Bismuth Potassium Neobate (PNBKN) Ceramic International Journal of Advanced Research in Physical Sciences (IJARPS) Volume 2, Issue 3, March 2015, PP7–21.

7. Tunable color emission via energy transfer in co-doped Ce<sup>3+</sup>/Dy<sup>3+</sup>: Li<sub>2</sub>O–LiF–B<sub>2</sub>O<sub>3</sub>– ZnO glasses for photonic applications, Optical Materials, (ELSEVIER Journal), 72(2017) 781–787, 16th July 2017.

8. Bright up-conversion white light emission from Er<sup>3+</sup> doped lithium fluoro zinc borate glasses for photonic applications, Journal of Molecular Structure (ELSEVIER Journal), 1155(2018) 394–402, 26th Oct. 2017.

9. Efficiency of Solutions to Reduce Water Impurity and Pollutants, Research Review International Journal of Multi Disciplinary, January 2019.

10. Spectral Investigation of green luminescent Tb<sup>3+</sup>: PVP polymer films, Journal of Information and Computational Science, Volume 10, Issue 1, Jan. 2020.

11. Study on double perovskite Bi<sub>2</sub>(NiMn)O<sub>6</sub> material for potential multi functional devices applications, Journal of Information and Computational Science, Volume 10, Issue 1, Jan. 2020.

12. Transportation of electrical energy based on Electron Spin with helical alignment in metals, Journal of Information and Computational Science, Volume 10, Issue 1, Jan.2020.
13. Enrichment of Photoluminescence Quantum Efficiency in Semiconductor Based on the Einstein Mass Energy Relation, International Journal of Innovative Research, Volume 12, Issue 4, 3149-3153, April 2023.
14. Studies on Dangling bonds effect on coupling nature of BiFeO<sub>3</sub> multiferroic nanoparticles, Journal of Xi'an University of Architecture & Technology, Volume XV, Issue IX ,347-356, Sept. 2023.
15. Study on electrical and magnetic properties of structural ordering of double Perovskite material, Journal of Xi'an University of Architecture & Technology, Volume XV, Issue 11, 2023 Nov. 2023.
16. Crystal growth, structural, optical, thermal and non-linear optical response of l-serine doping in potassium sulphato oxalate single crystals, Journal of Material Science:Materials in Electronics (Springer Nature) Volume 35, Page 795, April 2024.
17. Microwave Absorbers and Ferrites: A Comprehensive Review, Kronika Journal, ISSN 0023-4923, Scopeus and UGC Approval Journal, Volume 24, Issue 6, June 2024.
18. Lightning activity and its connection with weather-related parameters over Sri Lanka, Acta Geophysica, (Springer Nature) August 2024.

#### **BOOK CHAPTERS PUBLISHED:**

1. Multiferroic Properties of GDMnO<sub>3</sub> & GdFeO<sub>3</sub> Nanoparticles , Research Trends in Science and Technology Volume V (ISBN: 978-93-95847-03-2) Pages 41-51, Nov. 2023.
2. Research Methodology for Solar Water Heater Development: An Innovative Approach, Pathways to Discovery and Innovation, Nurturing Researchers for tomorrow PDINR-2024, ISBN: 978-81-967563-1-4, Pages 11-12, April 2024.
3. Advancements in Batteries and Solid Electrolyte Materials: Current Trends and Future Prospects, Proceedings of International Conference on "Smart Materials and Advanced Applications-2024", ISBN: 978-93-92760-55-6 Pages 9-18, August 2024.
4. Ambient conditions to enhance the solar energy efficiency in semiconductor based on the Einstein mass energy relation, Proceedings of International Conference on "Smart Materials and Advanced Applications-2024", ISBN: 978-93-92760-55-6 Pages 85-89, August 2024.
5. Crystal Growth, Optical and Dielectric properties of 1, 10-Phenanthroline-Doped Potassium Dihydrogen Phosphate, Proceedings of International Conference on "Smart Materials and Advanced Applications-2024", ISBN: 978-93-92760-55-6 Pages 134-137, August 2024.
6. Energy transfer through Spin exchange of the Electron, Proceedings of International Conference on "Smart Materials and Advanced Applications-2024", ISBN: 978-93-92760-55-6 Pages 238-242, August 2024.

## PAPERS PRESENTED IN INTERNATIONAL/NATIONAL CONFERENCES:

1. Syntheses and Analysis of BiNbO<sub>4</sub> Ceramic Powder, International Workshop and Symposium on the Synthesis and Characterization of Glass / Glass-Ceramics (IWSSCGGC – 2010). Centre of Materials for Electronics Technology (C-MET), Pune [July 7–10, 2010].
2. Analysis of RE<sup>3+</sup> (= Eu<sup>3+</sup>, Sm<sup>3+</sup>, Pr<sup>3+</sup>) doped BiNbO<sub>4</sub> Ceramic Powders International Conference on Multifunctional Materials (ICMM – 2010), Banaras Hindu University, Varanasi, UP [December 6–9, 2010].
3. Dielectric Properties of TM (= Cr<sup>3+</sup>, Mn<sup>2+</sup>, Fe<sup>3+</sup>) Doped BiNbO<sub>4</sub> Ceramic Powders 98<sup>th</sup> Indian Science Congress Association (ISCA – 2011) S. R. M. University, Chennai, Tamil Nadu [January 3–7, 2011].
4. Structural, thermal characterization of host Bi<sub>2</sub>O<sub>3</sub>–B<sub>2</sub>O<sub>3</sub>–LiF and emission analysis of Pr<sup>3+</sup> & Ho<sup>3+</sup> ions doped Bi<sub>2</sub>O<sub>3</sub>–B<sub>2</sub>O<sub>3</sub>–LiF glasses, International Conference on Composites and Nanocomposites (ICNC – 2011) Mahatma Gandhi University, Kottayam, Kerala State, [January 7–9, 2011].
5. Emission Analysis of RE<sup>3+</sup> (= Nd<sup>3+</sup> & Er<sup>3+</sup>) Doped Bi<sub>2</sub>O<sub>3</sub>–B<sub>2</sub>O<sub>3</sub>–LiF Glass System XVI – National Seminar on Ferroelectrics & Dielectrics, (NSFD–XVI) Guru Ghasidas Viswavidyalaya, Bilaspur, Chattisgarh State [December 2–4, 2010].
6. Studies on development and characterization of BiNbO<sub>4</sub> ceramic powder and Bi<sub>2</sub>O<sub>3</sub>–B<sub>2</sub>O<sub>3</sub>–LiF glass system and also their emission performance with the dopant transition metal or rare earth ions National Conference on “Emerging Trends in Material Science, Spec-2011”, Muthayammal College of Arts & Science, Rasipuram, Tamilnadu, during February 4–5, 2011.

## COURSES/TRAINING PROGRAMMES ATTENDED :

- 4 week Orientation Course held from 14<sup>th</sup> December 2000 to 10<sup>th</sup> January 2001 at Sri Venkateswara University, Tirupathi.
- Refresher Course in Physics held from 20<sup>th</sup> August 2001 to 9<sup>th</sup> September 2001 at Andhra University, Vishakhapatnam.
- Refresher Course in Physics held from 2<sup>nd</sup> August 2004 to 22<sup>nd</sup> August 2004 at Andhra University, Vishakhapatnam.
- Refresher Course in Physics held from 5<sup>th</sup> February 2007 to 2<sup>nd</sup> March 2007 at Jawaharlal Nehru University, New Delhi.
- National Seminar (UGC) on “Natural Calamities – Role of Scientists and Administrators at Sri Y. N. College, Narasapur on 2<sup>nd</sup> February 2008.
- 96<sup>th</sup> Indian Science Association held from 3<sup>rd</sup> January 2008 to 7<sup>th</sup> January 2008 at Andhra University Vishakhapatnam.
- Presented a paper titled “Studies on Dielectric and Magnetic properties of TM doped Bi NbO<sub>4</sub> Ceramic Powders” in 98<sup>th</sup> Indian Science Association held from 3<sup>rd</sup> January 2011 to 7<sup>th</sup> January 2011 at S.R.M University, Chennai.

·Regional Workshop on “Innovative Experiments in Physics (South Zone)” organized by VigyanPrasar, Department of Science and Technology, New Delhi and APCOST, Govt. of A.P. at Dept. of Physics, Sri Venkateswara University, Tirupati held from 7th February 2011 to 10th February 2011.

·100th Indian Science Association held from 3rd January 2013 to 7th January 2013 at Calcutta University, Calcutta.

·Professional Development Programme on ICT Techniques in Higher Education during March 10-15, 2014 at University of Hyderabad, Hyderabad.

·National Seminar on “Human Development index and India” during 14th and 15th November 2014 at V. S.M. College, Ramachandrapuram.

·National Conference on “Advanced Technology Oriented Materials, ATOM-2014” on 8th and 9th December 2014, Govt. Arts College, Rajahmundry.

·National Seminar on “Multi Functional Materials Synthesis and Applications” (MPMSA – 2018) , The Hindhu College,Machilipatnam.

·National Workshop “SpectroPhotometry&Chromotography, 20th June, 2016, Sir CRR College,Eluru.

·National Seminar “Applications of Nanomaterials in Energy and Environment 17-18 , Aug. 2016, ASD College for Women,Kakinada.

·National Seminar “Advabce Materials in Science &Technoloy” 23-24, Sept. 2016, PR Govt. College,Kakinada.

·National Seminar “Indian Agriculture Challenge, 17-18 Nov. 2017, V S M College,Ramachandrapuram.

·International Conference “Renewable Energy – Research & Education”, 8-10, Feb.2018, Govt. Arts College,Rajamahendravarm.

·Workshop on “Bio-Diversity Friendly Sector Plans for Port & Shipping, Fertilizers and Salt Pans, 4th July 2018, AdikaviNannaya University, Rajamahendravarm.

·National Seminar” A Study on Interaction between Human Society and Natural Environment including Natural Resource Management on 24th& 25th January2019.

·7 Day Teacher Training Programme on “Usage of ICT in Teaching Learning Process” during 2-9 December 2019 organized by MVS JS & RVR College of Arts and Science, Malkipuram.

·Organized a 2 days National Conference on “Recent Trends in Advanced Materials and Characterization (RTAMC-2020) during 29th& 30th of January 2020.

·Faculty Development Programme on “Focus on Free Open Source Software (FOSS) during 26th&27th February 2020 organized by VSM College(A), Ramachandrapuram.

·Two Weeks Faculty Development Programme on“MANAGING ONLINE CLASSES and CO-CREATING MOOCS“ from April 20-May 06, 2020 Organized by Ramanujan College, University of Delhi, New Delhi in association with Ministry of Human Resource and Development (MHRD).

·One Week National Online Faculty Development Program on “ICT Tools for Effective Teaching Learning” during 11-16 May 2020 organized by Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra.

- Two Day National Level Workshop on “Modern Methods For Remote Teaching–Learning Practices” during 12–13, May 2020,organized by Krishna University, Machilipatnam in association with Andhra Pradesh State Council Of Higher Education.
  
- Ten days “INDIAN SUMMER SCHOOL ON CRYSTAL GROWTH” (ISSCG–2020) during 14–23 May 20202, organized by SSN Research Centre, SSN Institutions, Chennai in association with Indian Association for Crystal Growth (IACG).
  
- A National level three days National Level FDP on “Tools For Online Classroom Post Covid–19” during 18–20 May 2020 organized by P B Siddhartha College, Vijayawada in association with Codegnan, CSI Vijayawada Chapter.
  
- One day Webinar on “CSR and SD: Lessons from the Pandemic”, during 15th May 2020 organized by AdikaviNannaya University, Rajamahendravaram in association with Institute of Public Enterprise.
  
- Webinar on “Guidelines for Writing a Research Paper” on 22nd May 2020 organized by Arasu Engg. College, Kumbakonam.
  
- One week International FDP on “Technology Assisted Teaching and Virtual Learning|ICT Tools” during 25–30, May 2020 organized by SBVR College, Badvel sponsored by UGC.
  
- One day Live Webinar on “Career Oppurtunities in Medi Care Physics, 26thMay 2020, organized by Parvathy’s Arts and Science College,Dindigul, TN.
  
- One day Webinar “Coping Strategies for India’s Economy during Post Covid–19 on 23rd May 2020 by AdikaviNannaya University, Rajamahendravaram in association with ArunJaitleyNatioanl Institute of Financial Management(NIFM), Faridabad.
  
- Two Week Workshop on “e–Learning to e–Training: A Comprehensive Guide for all your Administrative Work” during 25th May – 3rd June 2020, organized by Ramanujan College, University of Delhi, New Delhi in association with Ministry of Human Resource and Development (MHRD).
  
- 7 Day FDP (Webinar) on “Revised Accreditation Framework of NAAC” during27th May 2020 to 2nd June 2020, Govt. Arts College(A), Rajamahendravaram.
  
- Webinar on “Growth and Investigation of Nonlinear Optical Single Crystals for Opto–electronic Devices” on 3rd June 2020 organized by GRT Institute of Engg. And TechnologyTiruttani.
  
- 5 day FDP in “LMS Video & Pedagogy” during August 3–7,2020, Organized by Commissioner of Collegiate Education, AP
  
- 5 day AP CCE – US FDP on “New Knowledge In Physics and Energy Materials: Advance Research Techniques, during 6–10, July 2020 Organized by Commissioner of Collegiate Education, AP.
  
- 7 day FDP “Teaching Learning methods from micro teaching to peer learning“ from 30th April to 06th May 2022organized by Ramanujan College, University of Delhi, New Delhi in association with Ministry of Human Resource and Development (MHRD).
  
- 7 day FDP “Blended learning” from June 21–27, 2022 organized by Ramanujan College, University of Delhi, New Delhi in association with Ministry of Human Resource and Development (MHRD).
  
- National Conference “Recent Trends in Materials Science(RTMS–2022) on 24th Sept. 2022, organized by Dept. of Physics & Electronics, Govt. Degree College, Kadapa, A.P.
  
- 2 day Natonal Conference on “Recent Evolutions & Applications in Chemistry REECH–2022) N0vember 18–19, 2022, Govt. College Autonomous, Rajahmundry, A.P.

- 6 day FDP on “Mentoring and Facilitation for Apprenticeships”, December 19–24, 2022, Mahatma Gandhi National Council of Rural Educations.
- 5 day National level FDP on “Quality Enhancement in Teaching and Learning ”February 20–24, 2023, IOT Academy, Coimbatore, TN.
- 5 day online FDP on ”Theoretical & Experimental Physics ”m 29th May to 2nd June 2023, Vellore Institute of Technology, Vellore.
- 6 day FDP on “English Medium of Instruction”, June 19–24, 2023, Govt. Collge(A), Rajahmundry.
- One week online FDP on “Multidisciplinary Approach in Research Methodology” September 11–17, 2023.
- 3 day International Conference on “Recent Trends in Science and Engineering” ICRTSE–2024, Hybrid Mode, February 8–10, 2024.

### NAVAL NCC TRAINING PROGRAMMES ATTENDED:

- Participated Naval NCC Pre-Commission Training at INS VENDURTY, Naval Base, Cochin during January 1994 to April 1994 and granted as Commissioned Officer in Naval NCC by NCC Directorate, New Delhi.
- Participated Refresher Course in Naval NCC at INS VENDURTHY, Naval Base, Cochin during 10th March 1997 to 29th March 1997 and granted rank Sub. Lt.
- Participated Refresher Course in Naval NCC at INS CIRCARS, Naval Base, Visakhapatnam during 1st September 2003 to 18th September 2003 and granted a rank Lieutenant.
- Participated Refresher Course in Naval NCC at INS CIRCARS, Naval Base, Visakhapatnam during 5th June 2008 to 22nd June 2009 and granted a rank Lieutenant Commander.
- Participated more than 22 Naval NCC Training Camps including Godavari Sailing expeditions, four times as Contingent Commander for the 6(A) overall champion team in IGC Competitions and also participated several social service activities.
- Naval NCC cadets selected and participated in
  - YEP Youth Exchange Programmes (International) – 03 Cadets.
  - Republic Day Camps New Delhi – 09 Cadets.
  - All India Nau Sainik Camps – 06 Cadets.
  - RDC/IDC State – 08 Cadets.
  - Awarded Honorary Rank “**Lt. Cdr. (NAVAL NCC)**” by the Honorable President of India during January 2024.