Curriculum Vitae

Dr. Ranjit Kumar, M.Sc., JRF-NET, GATE, Ph.D.

Assistant Professor
Department of Physics,
Dr. Kalaignar M. Karunanidhi Government Institute for Post Graduate Studies and Research,
Karaikal, UT of Puducherry.
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Education

- **Ph.D.** in Physics: Jamia Millia Islamia (Central University), New Delhi in 2014.
  (Thesis title - Study of Physical and Chemical Mechanism Responsible for Colossal Dielectric Phenomenon in Calcium Copper Titanate (CCTO))
- **JRF-NET** in Physics: Council of Scientific and Industrial Research (CSIR), New Delhi in 2008
- **GATE** in Physics: Indian Institute of Technology (IIT), Roorkee 2017
- **M.Sc.** in Physics: C.C.S.University, Meerut in 2007
- **B.Sc.** in Physics, Mathematics & Chemistry: C.C.S.University, Meerut in 2007.

Fellowship/Award

- **Senior Research Fellowship** in the National Physical Laboratory (CSIR), New Delhi from 15.01.2011 to 14.01.2014.
- **Junior Research Fellowship** in the National Physical Laboratory (CSIR), New Delhi from 15.01.2009 to 14.01.2011.

Teaching Experience

- 9 years of teaching experience

Research Interest

- Nanomaterials, Synthesis and characterization of materials, Electroceramics, Dielectrics, Microwave Dielectrics, Thermoelectrics, Perovskites

Research Guidance

- 08 M.Sc. Dissertation/Project completed

Publications

- **Ranjit Kumar**, Rajeev Singh, and T. D. Senguttuvan, Dielectric responses of $Ba(Mg_{1/3}Ta_{2/3})O_3$ ceramics, AIP Conference Proceedings, 2270, 30006-30009, 2020.

- Rajeev Singh, **Ranjit Kumar**, FTIR study of CZ-Silicon annealed in air & air ambients at different temperatures, AIP Conference Proceedings, 2270, 110007-110010, 2020.

- **Ranjit Kumar**, M. Zulfequar and T. D. Senguttuvan, Improved giant dielectric properties in microwave flash combustion derived and microwave sintered $CaCu_3Ti_4O_{12}$ ceramics, Journal of Electroceramics, 42, 41-46, 2019.

- **Ranjit Kumar**, M. Zulfequar and T. D. Senguttuvan, Structural and impedance spectroscopic studies of spark plasma sintered $CaCu_3Ti_4O_{12}$ dielectric ceramics: an evidence of internal resistive barrier effect, Journal of Materials Science: Materials in Electronics, 27, 5233-5237, 2016.

- **Ranjit Kumar**, M. Zulfequar and T. D. Senguttuvan, Dielectric properties of microwave flash combustion derived and spark plasma sintered $CaCu_3Ti_4O_{12}$ ceramic: Role of reduction in grain boundary activation energy, Journal of Materials Science: Materials in Electronics, 26, 6718-6722, 2015.

- **Ranjit Kumar**, M. Zulfequar, Lalit Sharma, V. N. Singh and T. D. Senguttuvan, Growth of nanocrystalline $CaCu_3Ti_4O_{12}$ceramic by the microwave flash combustion method: Structural and impedance spectroscopic studies, Crystal Growth and Design, 15, 1374-1379, 2015.

- Lalit Sharma, Partheepan Ganesan, **Ranjit Kumar**, T.D. Senguttuvan, Vidya N. Singh, Dielectric properties of Pr6O11 nanorods grown chemically at low temperature and atmospheric pressure, Advanced Materials Letters, 6(9), 779-782, 2015.

- **Ranjit Kumar**, M. Zulfequar and T.D.Senguttuvan, Molecular kinetic based dielectric polarization in sol-gel derived nanocrystalline $CaCu_3Ti_4O_{12}$, Advanced Material Research, 699, 387-391, 2013.

- **Ranjit Kumar**, M. Zulfequar, V.N. Singh, J.S. Tawale, T.D. Senguttuvan, Microwave sintering of dielectric $CaCu_3Ti_4O_{12}$: An interfacial conductance and dipole relaxation effect, Journal of Alloys and Compounds, 541, 428-432, 2012.

- **Ranjit Kumar**, M. Zulfequar, V.N. Singh, Sukhvir Singh, T.D. Senguttuvan, A Low-Cost Chemical Route for High Dielectric Constant Plate-Shaped Nanocrystalline $CaCu_3Ti_4O_{12}$, Advanced Science Letters, 16, 79-83, 2012.

- **Ranjit Kumar**, M. Zulfequar, Harjeet Kaur, V.N. Singh, T.D. Senguttuvan, Impedance Spectroscopic Studies of Sol–Gel Derived Nanocrystalline $CaCu_3Ti_4O_{12}$, Advanced Science, Engineering and Medicine, 3, 1-5, 2011.

Conferences

- **Ranjit Kumar,** Role of International Solar Alliance for Sustainable Development, International Conference on Innovation in Science and Technology for Sustainable Development (ISTSD-2023), Maharishi University of Information Technology, Lucknow, 21- 23 November, 2023, **(Oral Presentation)**.

- **Ranjit Kumar,** A Giant Dielectric Constant in Microwave Sintered Nanocrystalline Perovskite Ceramic, 7th International Conference on Nanoscience and Nanotechnology (ICONN-2023), SRM Institute of Science and Technology, Chennai, 27- 29 March, 2023 (Poster Presentation).

- **Ranjit Kumar,** Permittivity and Loss Tangent of Barium Magnesium Tantalate at Low Frequencies, International Conference on Pure and Applied Physics (ICPAP 2023), Women's Christian College, Chennai, 23-24 March 2023 **(Oral Presentation)**.

- **Ranjit Kumar,** Growth and dielectric behavior of Ba(Mg1/3Ta2/3)O3 ceramics, International Conference on Materials Science and Spectroscopy (ICMSS-21), Maharishi University of Information Technology, Lucknow, 22-24 September, 2021 **(Oral Presentation)**.

- **Ranjit Kumar**, M. Zulfequar and T.D.Senguttuvan, A Colossal Dielectric Constant in $CaCu_3Ti_4O_{12}$Ceramic Grown by Microwave Flash Combustion Route, Fourth International Conference on Nanomaterials: Synthesis, Characterization and Applications (ICN 2019), Mahatma Gandhi University, Kottayam, 12-14 April 2019 **(Invited Talk)**.

- **Ranjit Kumar**, M. Zulfequar and T.D.Senguttuvan, Microwave flash combustion synthesis of highly dielectric $CaCu_3Ti_4O_{12}$ nanocrystalline ceramic: an impedance spectroscopic studies, International Conference on Technologically Advanced Materials and Asian Meeting on Ferroelectricity (ICTAM-AMF10), University of Delhi, Delhi, 7-11 Nov 2016 **(Oral Presentation)**.

- **Ranjit Kumar**, M. Zulfequar and T.D.Senguttuvan, Molecular kinetics based dielectric polarisation in sol-gel derived nanocrystalline $CaCu_3Ti_4O_{12}$, International Conference on Material Science and Chemical Engineering (MSCE-2013), Information Engineering Research Institute, Singapore, 20-21 Feb 2013 **(Oral Presentation)**.

- **Ranjit Kumar**, M. Zulfequar and T.D.Senguttuvan, Electrical heterogeneity in sol gel derived nanocrystalline $CaCu_3Ti_4O_{12}$, International Conference and workshop on nano structured ceramics and other materials, University of Delhi, Delhi, 13-16 March 2012 (Poster Presentation).

- **Ranjit Kumar**, M. Zulfequar and T.D.Senguttuvan, Structural and dielectric properties of sol gel derived nanocrystalline $CaCu_3Ti_4O_{12}$, International conference on Nanomaterials and Nanotechnology, University of Delhi, Delhi, 18-21 December 2011 (Poster Presentation).

Conference/ Seminar/ Webinar Organised

- Organised a one day national webinar on 'Redefinition of SI Units and its Importance to Science and Technology', 30.05.2020.

Resource Person/Invited Speaker

- Recourse Person in National Seminar on Recent Trends in Material Science, 22.02.2020, Dharmapuram Gnanambigai Government Arts College (W), Mayiladuthurai, Tamil Nadu.

Professional Training Received/Attended

- Faculty Development Program: Contemporary and Innovative Teaching Pedagogy and Essential Skill for Educators, 24 - 31 July 2023, Maharishi University of Information Technology, Lucknow.
- Refresher Course in Physics: 04 - 17 Aug 2021, UGC-HRDC, Pondicherry University
- National Webinar Series on Experimental & Computational Tools for Materials Research (ECTMR 2020): 01 – 08 June, 2020, jointly organized Indian Institute of Information Technology, Design & Manufacturing Jabalpur and Central University of Rajasthan.
- Orientation Course: 20 Nov to 10 Dec 2019, UGC-HRDC, Pondicherry University