Biodata

Name	Dr. Karthik T 
Designation	Scientist C
Educational qualification	M.Sc (Materials Science), Anna University Chennai M.Tech (Ceramic Technology), Anna University Chennai Ph.D (Materials Science & Engineering), IIT Hyderabad
Research area	Piezoelectric materials and actuators, Multiferroic and Magnetoelectric materials, Electro ceramics, Multifunctional materials and composites, Multilayer ceramic Processing, Textured ceramics, HTCC based ceramics
Recognised Awards/Honors/Fellow	• "Early Career Research Award", DST-SERB, Govt. of India, 2019 • "Institute Post-Doctoral Fellowship", IIT Bombay, 2016-2017**.** • "Young Scientist Award" Dr. K.V. Rao Research society,2013-2014. • "Excellence in Research award" by IIT Hyderabad, 2013-2014. • A Member of Indo-Japan DST-JSPS project (2012-2013)
Projects	Ongoing: 1. Textured lead free $Na_{0.5}Bi_{0.5}TiO_3$ based multilayer piezoelectric actuator Role: Principal Investigator -PI Funding Agency: SERB (DST) Total Outlay: 49.74 lakhs Duration: May-2019 to May 2022 2. Supply of linear amplified piezoelectric actuator for use in breath-in regulators for aircrew Role: (Co-PI) Funding Agency: DEBEL (DRDO) Total Outlay: 43.67 lakhs Duration: Jan-2019 to July-2020
Publications/Patents (**Past 5 years**)	1. Origin of enhanced piezoelectric properties revealed through electric field driven studies in $0.94(Na_{0.5}Bi_{0.5}TiO_3)$-$0.06(Ba_{0.85}Ca_{0.15}Ti_{0.9}Zr_{0.1}O_3)$ ceramics, **Karthik T**, Sudhindra Rayaprol, Vasudeva Siruguri, Saket Asthana, *J. Appl. Phys*, 127, **(2020)**134102. 2. Enhanced magnetoelectric response in 2-2 bilayer $0.50Pb(Ni_{1/3}Nb_{2/3})O_3$-$0.35PbTiO_3$-$0.15PbZrO_3$/$CoFe_2O4$ thin films Ramesh Ade, **T. Karthik**, V. Sambasiva, Jayant Kolte, Ajit R. Kulkarni and N. Venkataramani, *Scripta Materialia* 150 **(2018)**125-129.

	3. Origin of enhanced piezoelectric properties and room temperature multiferroism in MnO_2 added $0.90(Li_{0.12}Na_{0.88}NbO_3)$-0.10 $BaTiO_3$ ceramic, Supratim Mitra, **T. Karthik**, Jayant Kolte, Ramesh Ade, N. Venkataramani, Ajit R. Kulkarni, *Scripta Materialia* 149 **(2018)** 134-138. 4. Enhanced magnetoelectric response in 2-2 bilayer $0.50Pb(Ni_{1/3}Nb_{2/3})O_3$-$0.35PbTiO_3$-$0.15PbZrO_3/NiFe_2O_4$ thin films Ramesh Ade, V. Sambasiva, Jayant Kolte, **T. Karthik**, Ajit R. Kulkarni and N. Venkataramani, *J. Phys.D: Appl.Phys* 51(11) **(2018)** 5. Nature of electric field driven ferroelectric phase transition in lead-free $Na_{1/2}Bi_{1/2}TiO_3$: In-situ temperature dependent ferroelectric hysteresis and Raman scattering **T. Karthik**, D. Radhakrishanan, Chandrabas Narayana, S Asthana, *Journal of Alloys and Compounds* 732 **(2018)** 945-951. 6. Polarization extension mechanism revealed through dynamic ferroelectric hysteresis and electric field driven structural distortions in lead free $Na_{0.5}Bi_{0.5}TiO_3$ ceramics **T. Karthik** and Saket Asthana, *J. Phys.D: Appl.Phys*. 50 (38) **(2017)** 385601. 7. Enhanced mechanical and ferroelectric properties through grain size refinement in site specific substituted K-ion in $Na_{0.5-x}K_xBi_{0.5}TiO_3$ (x = 0 – 0.10) ceramics, **T. Karthik** and Saket Asthana, *Mater. Lett*.190 **(2017**)273–275. 8. Structural, ferroelectric and piezoelectric properties of chemically processed, low temperature sintered piezoelectric BZT-BCT ceramics Subir Roy, Rajalaxmi Maharana, Rangaswamy Seelam, Sarabjit Singh, Pawankumar, **Karthik Thangavelu**, Saket Asthana,V.V. Bhanu Prasad and Samir Kamat, *Materials Research Express*, 3(3) **(2016)** 035702. 9. Structural and microstructural correlation with ferroelectric and dielectric properties of nanostructured $Na_{0.5}Bi_{0.5}TiO_3$ ceramics Manmohan Sahu, **Thangavelu Karthik**, Adiraj Srinivas, Saket Asthana, *J Mater Sci: Mater Electron*, 26, **(2015)** 9741. 10. Effect of local strain fields on the structural, Neel transition temperature and long-range ferroelectric ordering in rare earth substituted $Bi_{0.9}R_{0.1}FeO_3$ multiferroic ceramics (where, R = Gd^{3+}, Tb^{3+}, Dy^{3+}) **Karthik Thangavelu**,T. Durga Rao, Adiraj Srinivas, Saket Asthana, *J Mater Sci: Mater Electron.* 26, **(2015)** 8676. 11. Monoclinic *Cc*-phase stabilization in magnetically diluted lead free $Na_{1/2}Bi_{1/2}TiO_3$ – Evolution of spin glass like behavior with enhanced ferroelectric and dielectric properties, **Karthik Thangavelu** and Saket Asthana, *Mater. Res. Express 2*, **(2015),** 096301. 12. Effect of poling process on piezoelectric properties of sol–gel derived BZT–BCT ceramics, J. Paul Praveen,**T. Karthik**, A.R. James, E. Chandrakala, Saket Asthana, Dibakar Das, *J. European Ceramic Society* 35 (6) **(2015)** 1785-1798 13. Ferroelectric, piezoelectric and mechanical properties in lead free $(0.5)Ba(Zr_{0.2}Ti_{0.8})O_3$ -$(0.5)(Ba_{0.7}Ca_{0.3})TiO_3$ electroceramics A Srinivas, R.V. Krishnaiah, V.L. Niranjani, S.V. Kamat, **T.**

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Google Scholar link	https://scholar.google.co.in/citations?user=UmiIZNwAAAAJ&hl=en