भारत सरकार /Government of India
परमाणु ऊर्जा विभाग / Department of Atomic Energy
होमी भाभा राष्ट्रीय संस्थान / Homi Bhabha National Institute
राजा रामन्ना प्रगत प्रौद्योगिकी केन्द्र
Raja Ramanna Centre for Advanced Technology

HBNI Faculty Profile

Name	**Dr. L. S. Sharath Chandra**	
Designation	*Assistant Professor*	
Research Area	*Superconductivity, Strongly correlated electron systems, Metal-Insulator transitions, Thermo-electric materials, Magnetic Semiconductors Electronic topological transitions.*	
Research Profile	*My focus is on the materials properties at low temperatures and in high magnetic fields to understand the correlation between lattice, electron and spin degrees of freedoms which can lead to novel technological applications. At present, I am involved in optimizing the microstructures of superconducting $V_{0.6}Ti_{0.4}$ alloy to achieve a critical current density in par with the commercial Nb based alloys and compounds. The studies to understand the correlation between superconductivity and magnetism in these and related alloys and compounds are also being pursued. I am also interested in understanding the role of electronic topological transitions in shaping the properties related to the technological applications of the functional alloys.*	

Ten Selected Recent Publications

1.	Ramjan, SK., Sharath Chandra L. S., Singh R., Ganesh P., Sagdeo A., and Chattopadhyay M. K., 2022. Enhancement of functional properties of $V_{0.6}Ti_{0.4}$ alloy superconductor by the addition of yttrium, J. Appl. Phys. 131, 063901.
2.	Yadav S., Chandra M., Rawat R., Khandelwal A., Sharath Cahdnra L. S., Choudhary R. J., Sathe V., Sinha A. K., and Singh K., 2022. Temperature dependent structural, dielectric, and Raman spectroscopy studies on magnetoelectric $Co_4Nb_2O_9$, J. Phys. Chem. C 126, 14986.
3.	Sharath Chandra L. S., Ramjan SK., Soma Banik, Archna Sagdeo, and Chattopadhyay M. K., 2021. Temperature induced first order electronic topological transition in β-Ag2Se, Appl. Phys. Lett. 118, 143905.

4.	Paul S., Ramjan SK., Sharath Chandra L. S., and Chattopadhyay M. K., 2021. Coexisting superconductivity and ferromagnetism in the $(V_{0.60}Ti_{0.40})$-Gd alloys, Mater. Sci. Eng. B 274, 115462.
5.	Sharath Chandra L. S., Sundar S., Banik S., Ramjan SK., Chattopadhyay M. K., Jha S. N., and Roy S. B., 2020. Localization of electronic states resulting from electronic topological transitions in the $Mo_{1-x}Re_x$ alloys: A photoemission study, J. Appl. Phys. 127, 163906.
6.	Paul S., Sharath Chandra L. S., and Chattopadhyay M. K., 2019. Renormalization of electron–phonon coupling in the Mott–Ioffe–Regel limit due to point defects in the $V_{1-x}Ti_x$ alloy superconductors, J. Phys.: Condens. Mat. 31, 475801.
7.	Sharath Chandra L. S., Paul S., Khandelwal A., Kaushik V., Sagdeo A., Venkatesh R., Kranti Kumar, Banerjee A., and Chattopadhyay M. K., 2019. Structural and magnetic properties of the as-cast $V_{1-x}Zr_x$ alloy superconductors**,** J. Appl. Phys. 126, 183905.
8.	Sharath Chandra L. S., Chattopadhyay M. K., Roy S. B. and Pandey S. K., 2016. Thermal properties and electronic structure of superconducting germanide skutterudites LaPt4Ge12 and PrPt4Ge12: a multi-band perspective Phil. Mag. 96, 2161.
9.	Sudar S., Sharath Chandra L. S., Chattopadhyay M. K., Pandey S. K., Venkateshwaralu D., Rawat R., Ganesan V. and Roy S. B., 2015. Strong electron-phonon coupling and multiband effects in the superconducting β-phase $Mo_{1-x}Re_x$ alloys, New J. Phys. 17, 053003.
10.	Sudar S., Sharath Chandra L. S., Chattopadhyay M. K., and Roy S. B., 2015 Evidence of multiband superconductivity in the β-phase $Mo_{1-x}Re_x$ alloys, J. Phys: Condens. Mater 27, 045701.