




भारतसरकार/Government of India
परमाणुऊर्जाविभाग / Department of Atomic Energy
होमी भाभा राष्ट्रीय संस्थान/ Homi Bhabha National Institute
राजारामन्नाप्रगतप्रौद्योगिकीकेन्द्र
Raja Ramanna Centre for Advanced Technology



HBNI Faculty Profile

Name	<i>Dr. Vikas Kumar Jain</i>	
Designation	<i>Associate Professor</i>	
Research Area	<i>Numerical simulations, Superconducting RF Cavity, Electron Beam Welding, Resonance study, Cryogenic system for accelerators</i>	
Research Profile	<i>Dr. Vikas Jain is accelerator technology researcher known for his numerous contributions. He began his career at the Institute for Plasma Research (IPR), DAE in 1995 after completing 1 year training school program and later joined the RRCAT in 2001. In 2011 has completed PhD from IIT Bombay on studies of Higher Order Modes in RF cavities of accelerators. He has made significant advancements in superconducting RF cavity development, HOM studies, and superconducting magnets. Notable achievements include designing and developing superconducting cavities, qualifying tuners for SCRF cavities, and establishing infrastructure for cavity dressing. Dr. Jain's worked on SCRF cavity and cryomodule development for RRCAT and Fermilab and superconducting magnets for CERN and IPR. He has Indian & international patent on tuner development. He has published 112 research papers, making him a valuable contributor to the field of accelerator research.</i>	
Ten Selected Recent Publications		
1.	V. Jain, U.V. Bhandarkar, S. Yadav, S.C. Joshi, A.D. Ghodke, M. Lad and P.R. Hannurkar , 'Estimation of Higher Order Modes of Indus-2 RF cavity Using Combined Electromagnetic–Thermal–Structural Simulations', Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment (NIM-A) 01/2010; 612(2): pages 225-240. Publisher:- ELSEVIER	
2.	V. Jain, U. V. Bhandarkar, S. C. Joshi, S. Krishnagopal , 'Analytical Study of HOMs of Elliptical Shape Cavities Using Oblate Spheroidal Eigen-Value Solution', <i>Physical Review Special Topics - Accelerators and Beams</i> , 14, 042002 (2011) Publisher:- American Physical Society (APS)	



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3.	V. Jain, U.V. Bhandarkar, S.C. Joshi, S. Krishnagopal , "Matching index technique for avoiding Higher Order Mode resonance in accelerators: INDUS-2 accelerator as a case study", The Review of scientific instruments, 84:8 2013 Aug, pp. 086101. Publisher:- AIP Publishing
4.	S C Joshi, S Raghavendra, V. Jain, A Puntambekar, P Khare, J Dwivedi, G Mundra, P K Kush, P Shrivastava and P D Gupta , "Indigenous Development of Superconducting Cavities, Cryomodules and Related Infrastructure for High Intensity Proton Linacs", Indian Nuclear Society News, Vol. 10, No. 3 & 4, July-Dec., 2013, pp. 25-34. Publisher:- Indian Nuclear Society
5.	Rahul Shukla, V. P. Dhamgaye, V. Jain, P. Ram Sankar, C. Mukherjee, B. D. Pant, G. S. Lodha , "Fabrication of high aspect ratio comb-drive actuator using deep X-ray lithography at Indus-2", Microsystem Technologies, 2014, Volume 20, Issue 7, pp 1273-1280. Publisher:- IOP Publishing
6.	S C Joshi, S Raghavendra, V. Jain, A Puntambekar, P Khare, J Dwivedi, G Mundra, P K Kush, P Shrivastava, M Lad and P D Gupta , "Development of Infrastructure Facilities for Superconducting RF Cavity Fabrication, Processing and 2 K Characterization at RRCAT", IOP Series: Materials Science and Engineering 171 (2017) 012114, doi:10.1088/1757-899X/171/1/012114. Publisher:- IOP Publishing
7.	Vandna K.Gupta, Alka A.Ingale, V. Jain, R.Aggarwal, S.Pal , "Predicting surface modification of InAs nanowires on laser irradiation using transient thermal simulation and time evolution of Raman spectra", Journal of Alloys and Compounds, Volume 735, 25 February 2018, pp 1331-1338. Publisher:- ScinceDirect
8.	Mayur Rathore, Vikas Kumar Jain* , Kuldeep Kumar Singh, Avinash Puntambekar, Ashok Atulkar, Rajkumar Porwal , "Estimation of Lorentz force detuning and its compensation on 650 MHz $\beta_g = 0.92$ single cell SCRF cavity", IOP Journal Engineering Research Express, Volume 3, Number 2, Available online from 13th May 2021, https://doi.org/10.1088/2631-8695/abfdf7 , Publisher:- IOP science. (*corresponding Author)
9.	K. K. Singh, V. K. Jain* , D. V. Ghodke, A. Puntambekar , "A novel method for Lorentz force detuning compensation in multi-cell superconducting RF cavity and its validation at room temperature", Review of Scientific Instruments, 92(6), 063303, 2021, https://doi.org/10.1063/5.0046548 (*corresponding Author)
10.	Sushil K. Sharma, Honey Gupta, Vikas K. Jain* , P. Ganesh, Ram K. Gupta, Digamber P. Yadav, and Rakesh Kaul "Investigation of UHV Compatible Weld Joints of AA5083 and AA6061 materials for Synchrotron Radiation Source", Journal of Materials Engineering and Performance, Available online from 4 January 2022, https://doi.org/10.1007/s11665-022-06589-8 (*corresponding Author)