



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	<i>Rajeev Bhatt</i>	
Designation	<i>Associate Professor</i>	
Research Area	<i>Functional materials for lasers, nonlinear optics, photonics and energy harvesting applications</i>	
Research Profile	<i>Dr. Rajeev Bhatt has been involved in the research and development of photonics and functional piezoelectric materials. His research interests includes development of technologically important laser host, nonlinear optical, scintillator and pyroelectric materials with the focus to grow them in mono-crystalline form and to investigate their structural, optical and electrical properties. He has fabricated oriented Laser, nonlinear optical (NLO) and electrooptical (EO) elements, pyroelectric sensor etc., and demonstrated lasing, second harmonic generation, photorefraction, electro-optic modulation using the in-house grown crystals.</i>	
Ten Selected Recent Publications		
1.	M. Soharab, R. Bhatt, A. Saxena and Indranil Bhaumik, Effect of Cr co-doping on the optical absorption and emission characteristics of Yb:YVO ₄ single crystals grown by OFZ technique, Optical Materials 128 (2022) 112434.	
2.	A. Sharma, P. Yadav, R. Bhatt, S. Banik, G. Singh, I. Bhaumik, Effect of Nb Substitution on the Electronic Property of Lead-free Piezoelectric (Na _{0.41} K _{0.09} Bi _{0.50})TiO ₃ Single Crystal: Optical Absorption and Photoelectron Study, Journal of Applied Physics, 132, 205103, 2022.	
3.	M. Soharab, I. Bhaumik, R. Bhatt, A. Saxena, S. Khan, U.K. Goutam, A.K. Karnal, "Investigation of optical and spectroscopic properties of Nd co-doped Yb:YVO ₄ single crystals grown by OFZ method", J. Luminescence 231 (2021) 117736	
4.	A. Sharma, P. Yadav, R. Bhatt, M. Soharab, G. Singh, I. Bhaumik, Refractive index and domain structure of undoped and Nb doped (Na _{0.41} K _{0.09} Bi _{0.50})TiO ₃ (NBT-KBT) single crystal grown at MPB composition, Optical Materials, Vol. 133, p. 113021, 2022.	
5.	R. Bhatt, M. Soharab, Indranil Bhaumik, P. Verma, B.K. Sajith, A. Saxena, A.K.Karnal, Effect of reduction on the optical properties of Sr _{0.61} Ba _{0.39} Nb ₂ O ₆ single crystals grown by optical floating zone technique, Journal of Alloys & Compounds, 810, (2019) 151818	



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6.	Indranil Bhaumik, V.L. Ananthu Vijayan, R. Bhatt, M. Soharab, S. Ganesamoorthy, A.K. Karnal, "Crystal Interface Control at Low Thermal Gradient and Investigation of the Effect of Cr on the Crystal Structure and Optical Properties of Bismuth Silicate" Phys. Status Solidi B, 258 (2021) 2100315
7.	Indranil Bhaumik, M. Soharab, R. Bhatt, A. Saxena, S. Sah, A.K. Karnal, "Influence of Al content on the optical band-gap enhancement and lattice structure of (Ga _{1-x} Al _x) ₂ O ₃ single crystal" Optical Materials 109 (2020) 110351.
8.	MKR Rahman, B. Riscob, R. Bhatt, Indranil Bhaumik, S. Ganesamoorthy, N. Vijayan, G. Bhagavannarayana, A.K. Karnal, L. Nair "Investigations on crystalline perfection, Raman spectra and optical characteristics of transition metal (Ru) co-doped Mg:LiNbO ₃ single crystals" ACS omega 6, (2021) 10807
9.	S Chinnasami, P Rajesh, R Bhatt, Indranil Bhaumik, P Ramasamy, AK Karnal, "Temperature dependent refractive index, thermo-optic coefficient and birefringence of negative biaxial Imidazolium L-Tartrate non-linear optical crystal" Optik, 243 (2021) 167021
10.	M. Soharab, Indranil Bhaumik, R. Bhatt, A. Saxena, S. Khan, A. Sagdeo and A.K. Karnal, Growth and optical investigation of Nd co-doped Yb:YVO ₄ crystal: A promising material for laser gain medium, Optical Materials, 109, 110183, 2020.