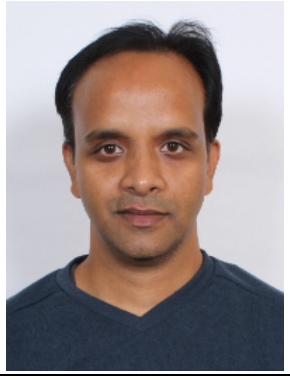
भारत सरकार /Government of India
परमाणु ऊर्जा विभाग / Department of Atomic Energy
होमी भाभा राष्ट्रीय संस्थान / Homi Bhabha National Institute
राजा रामन्ना प्रगत प्रौद्योगिकी केन्द्र
Raja Ramanna Centre for Advanced Technology

HBNI Faculty Profile

Name	*Dr. Salahuddin khan*	
Designation	*Assistant Professor*	
Research Area	*Ultrafast carrier dynamics, Pump-probe, Two-dimensional van der Waals materials, Exciton dynamics, Spin Dynamics*	
Research Profile	*Dr. Salahuddin Khan works in the area of ultrafast carrier dynamics mainly focusing on the studies related to semiconductor heterostructures, hybrid nanostructures and two-dimensional van der Waals materials. He has developed expertise in pump-probe time resolved reflectivity/transmission measurements using femtosecond laser. He has performed carrier dynamics studies on semiconductor quantum well structures using pump-probe technique to study effects like carrier tunnelling and carrier recombination. He is currently working on ultrafast dynamics of two-dimensional van der Waals materials with an aim of studying quantum phenomenon and optoelectronic applications involving excitons, multi-exciton generation and their dynamics.*	

Ten Selected Recent Publications

1.	Khan S., Khan S., Jayabalan J., Khamari S.K, Sharma T.K. Role of Intra-Band Relaxation of Holes and Tunneling of Electrons in Carrier Relaxation in AlGaAs/GaAs Quantum Well. Physica Status Solidi (B), Vol. 259, p. 2100329, Jun. 2022.
2.	Durga Prasad Khatua, Singh A., Sabina Gurung, Khan S., Manushree Tanwar, Rajesh Kumar, J Jayabalan. Ultrafast Carrier Dynamics in a Monolayer MoS2 at Carrier Densities Well Above Mott Density. Journal of Physics: Condensed Matter, Vol. 34, p. 155401, Feb. 2022.
3.	Durga Prasad Khatua, Sabina Gurung, Singh A., Khan S., Sharma T.K., Jayabalan J. Filtering noise in time and frequency domain for ultrafast pump–probe performed using low repetition rate lasers.Review of Scientific Instruments, Vol.

	91, no. 10, p. 103901, Oct. 2020.
4.	Soharab M., Bhaumik I., Bhatt R., Saxena A., Salahuddin Khan, Sagdeo A., Karnal A.K. Growth and optical investigation of Nd co-doped Yb:YVO4 crystal: A promising material for laser gain medium. Optical Materials, 109, 110183 (2020).
5.	Asha Singh, J. Jayabalan, Salahuddin Khan, Rama Chari, Femtosecond laser induced photoluminescence enhancement of TGA-capped CdTe quantum dots, Journal of Luminescence., 194, 45–49 (2018).
6.	SS Majid, DK Shukla, F Rahman, Salahuddin Khan, K Gautam, A Ahad, S Francoual, R J Choudhary, VG Sathe, J Strempfer. Insulator-metal transitions in the phase Cr-doped and phase undoped thin films. Physical Review B, 98, 075152, (2018).
7.	Salahuddin Khan, J. Jayabalan, Asha Singh, Rachana Yogi, Rama Chari. Probing Carrier Dynamics of Individual Layers in a Heterostructure using Transient Reflectivity, Appl. Phys. Lett., 107, 121905 (2015).
8.	Salahuddin Khan, J. Jayabalan, Rama Chari, Suparna Pal, Sanjay Porwal, Tarun Kumar Sharma and S. M. Oak. Quantum beats from the coherent interaction of hole states with surface state in near-surface quantum well. Appl. Phys. Lett., 105, 073106 (2014).
9.	Salahuddin Khan, Rama Chari, J. Jayabalan, Suparna Pal, T. K. Sharma, A. K. Sagar, M. S. Ansari and P. K. Kush. Modulations in low-temperature transient reflectivity measurements. Surf. Rev. Lett., 21, 1450005 (2014).
10.	Suparna Pal, S. D. Singh, S. Porwal, T. K. Sharma, Salahuddin Khan, J. Jayabalan, Rama Chari, and S. M. Oak, Effect of light-hole tunnelling on the excitonic properties of GaAsP/AlGaAs near-surface quantum wells. Semicond. Sci. Technol., 28, 035016 (2013).