



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>Tarun Kumar Sharma</i>	
Designation	<i>Professor</i>	
Research Area	<i>Semiconductor Physics and Devices, Optoelectronics</i>	
Research Profile	<i>Tarun's primary research interests lie in the area of semiconductor physics related to quantum wells, quantum dots and other semiconductor heterostructures with a particular onus on optimizing the performance of semiconductor devices like light emitting diodes, laser diodes, Photodiodes, Schottky diodes, High electron mobility transistors and multi junction solar cells.</i>	
Ten Selected Recent Publications		
1.	A. Chatterjee, S. K. Khamari, R. Kumar, S. Porwal, A. Bose, S. Raghavendra, V. K. Dixit and T. K. Sharma, Ultranarrow Band UV Detection in GaN with Simple Device Architecture, Phys. Status Solidi RRL, xx, 2200322 (2022).	
2.	Priyabrata Mudi, Shailesh K Khamari, Joydipto Bhattacharya, Aparna Chakrabarti and T K Sharma, Signature of linear-in-k Dresselhaus splitting in the spin relaxation of X-valley electrons in indirect band gap AlGaAs, Phys. Rev. B. 104, 115202 (2021).	
3.	Priyabrata Mudi, Shailesh K Khamari, and T K Sharma, Contribution of inter-valley scattering in governing the steady state optical spin orientation in Al _x Ga _{1-x} As, J. Phys. D: Appl. Phys. 54, 495107 (2021).	
4.	Priyabrata Mudi, Shailesh K Khamari, and T K Sharma, Prediction of inverse spin Hall devices based on the direct injection of carriers in L-valley of GaAs, J. Phys. D: Appl. Phys. 54, 205101 (2021).	
5.	Priyabrata Mudi, S. K Khamari, T. K. Sharma, Role of Hot Electrons in the Development of GaAs-Based Spin Hall Devices with Low Power Consumption, Phys. Status Solidi RRL, 14, 2000097 (2020).	
6.	A Chatterjee, S. K Khamari, R Kumar, S Porwal, A Bose, T. K. Sharma, Role of threading dislocations and point defects in the performance of GaN-based metal-semiconductor-metal ultraviolet photodetectors, Superlattices and Microstructures 148, 106733 (2020).	



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7.	Dipankar Jana, Abhishek Chatterjee, T. K. Sharma, Confirmation of the compensation of unintentional donors in AlGaN/GaN HEMT structures by Mg-doping during initial growth of GaN buffer layer, J. Lumin. 219, 116904 (2020).
8.	Abhishek Chatterjee, V. K. Agnihotri, R. Kumar, S. Porwal, A. Khakha, Jayaprakash G., Tapas Ganguli and T. K. Sharma, Optimization of the growth of GaN epitaxial layers in an indigenously developed MOVPE system, Sadhana 45, 249 (2020).
9.	Abhishek Chatterjee, Shailesh K. Khamari, Sanjay Porwal, and T. K. Sharma, Role of ZrO ₂ Passivation Layer Thickness in the Fabrication of High-Responsivity GaN Ultraviolet Photodetectors, Phy. Stat. Sol. RRL 13, 1900265 (2019).
10.	S. Haldar, A. Banerjee, Geetanjali Vashisht, S. Porwal, T.K. Sharma, and V.K. Dixit, A parallel magnetic field driven confinement versus separation of charges in GaAs quantum well investigated by magneto-photovoltage and magneto-photoluminescence spectroscopy, J. Lumin. 206, 342 (2019).