



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>Suparna Pal</i>	
Designation	<i>Associate Professor</i>	
Research Area	<i>Semiconductor physics & devices, Thin films deposition and coating, Optoelectronic devices, Si & III-V semiconductors, Oxides</i>	
Research Profile	<i>My research area includes thin film deposition of thin films, 2D, 1D semiconducting (III-V, nitride, dichalcogenides) and oxide materials through various techniques like chemical vapor deposition, sputtering, sol-gel technique etc. It encompasses Fabrication of different semiconductor and optoelectronic devices based on QW, MOS, MSM and thin film heterojunction for various applications like photodetectors etc. Optical coating e.g. antireflection as well as high reflection coating for various substrates is also my aim. Material characterizations such as XRD, XPS, absorption, photoluminescence, Raman spectroscopy, EXAFS etc. have also been used extensively for the detailed insight of the deposited materials.</i>	
Ten Selected Recent Publications		
1.	“WS₂ Nanosheet/Si p-n Heterojunction Diodes for UV-Visible Broadband Photodetection” , Suparna Pal , S. Mukherjee, R. Jangir, M. Nand, D. Jana, S. K. Mandal, S. Bhunia, C. Mukherjee, S. N. Jha, and S. K. Ray, ACS Appl. Nano Mater. 2021, 4, 3, 3241–3251.	
2.	“Si compatible MoO₃/MoS₂ core-shell quantum dots for wavelength tunable photodetection in wide visible range” , Suparna Pal , S. Mukherjee, M. Nand, H. Srivastava. C. Mukherjee, S. N. Jha, S. K. Ray, Applied Surface Science, 502, 144196 (2020).	
3.	“Effect of Polytypism on the long and short range crystal structure of InAs nanostructures , Suparna Pal , Parasmani Rajput, Shreyashkar Dev Singh, Vasant G. Sathe, Shambhu Nath Jha, J. Vac. Sci. Technol. B, 35, 041803 (2017)	



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4.	"Self catalyst assisted and catalyst-free epitaxial growth of InAs on Ge(111): Role of substrate surface and evolution of polytypism", Suparna Pal , C. Mukherjee, V. G. Sathe, Ravi Kumar, Pragya Tiwari, V. K. Dixit and T. K. Sharma, J. Vac. Sci. Technol. A, 35, 061501 (2017).
5.	"Spatially resolved Raman Spectroscopy Study of uniform and tapered InAs micro-nanowires: correlation of strain and polytypism", V. K. Gupta, A. Ingale, Suparna Pal , and R. Aggarwal, Journal of Raman spectroscopy 48 (2017) 855-865.
6.	"Effect of surface morphology on the optical properties of InAs/Ge (111)", Suparna Pal , V. G. Sathe, K. Rajiv, C. Mukherjee, R. Kumar, V. K. Dixit, Applied Surface Science 372 (2016) 70-78.
7.	"Crystalline and band alignment properties of InAs/Ge(111) heterostructure", Suparna Pal , S. D. Singh, V. K. Dixit, T. K. Sharma, R. Kumar, A.K. Sinha, V. Sathe, D. M. Phase, C. Mukherjee, and Alka Ingale, Journal of Alloy and Compounds 646 (2015) 393 -398.
8.	"Time evolution studies of laser induced chemical changes in InAs nanowire using Raman spectroscopy", Suparna Pal , R. Aggarwal, Vandna Kumari Gupta, and Alka Ingale, Applied Physics Letters 105, 012110 (2014).
9.	"Effect of light-hole tunnelling on the excitonic properties of GaAsP/AlGaAs near-surface quantum wells" Suparna Pal , S. D. Singh, S. Porwal, T. K. Sharma, S. Khan, J. Jayabalan, Rama Chari and S. M. Oak, Semicond. Sci. Technol., 28 035016(2013).
10.	"Low- and high-density InAs on Si(001) and their Raman imaging", Suparna Pal , S.D. Singh, V. K. Dixit, Alka Ingale, Pragya Tiwari, Himanshu Srivastava, Ravi Kumar, C. Mukherjee, P. Prakash and S. M. Oak, Semicond. Sci. Technol., 28 015025(2013).