




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>P. K. Mukhopadhyay</i>	
Designation	<i>Associate Professor</i>	
Research Area	<i>Ultrafast fiber laser, fiber amplifier, Diode pumped solid state laser, Frequency conversion, Laser induced break down spectroscopy, Material processing and surface modification</i>	
Research Profile	<i>At Advanced Diode Pumped Laser Lab (ADPLL), LTD, RRCAT we are working in the field of ultrafast fiber laser and amplifier, diode-pumped solid state (DPSS) lasers with frequency conversion and application of inhouse built lasers. We have developed ultrafast fiber oscillator in various configurations like dispersion-managed, similariton, all-normal-dispersion and Mamyshev oscillator configuration and scaled up the pulse energy in fiber amplifier under chirped pulse amplification scheme. We also explore the functional possibilities of modelocked fiber laser to generate pulses in diverse temporal format. Since long, at ADPLL, we are working in the field DPSS lasers and developed several intracavity frequency doubled DPSS green laser systems for departmental and medical applications. We also use in-house built lasers for material processing applications and recently developed Laser induced break down spectroscopy (LIBS) setup for elemental analysis of materials.</i>	
Ten Selected Recent Publications		
1.	Sunita Ahlawat, Amarjeet Singh, Pranab K. Mukhopadhyay, Rashmi Singh, V. P. Dhamgaye, S. K. Dixit and K.S. Bindra , 2023. Analyte enrichment and sensitive detection over nanosecond laser textured stainless steel superhydrophobic surfaces. Mat. Chem. & Phys. vol. 302, pp. 127755.	
2.	Sunita Ahlawat, Pranab K. Mukhopadhyay, Rashmi Singh, S. K. Dixit and K.S. Bindra, 2023, Laser textured superhydrophilic silicon for uniform solidification and sensitive detection of water based samples using laser induced breakdown	



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	spectroscopy, J. Anal. At. Spectrom. Vol. 38, pp. 883.
3.	Pradeep K Gupta, C P Singh, P K Mukhopadhyay, S K Dixit and K S Bindra, 2023. Vector dark-bright pulses from Ytterbium doped fiber laser mode-locked by nonlinear multimode interference, Laser Physics, vol.33, pp. 045105-1-5
4.	Nitish Paul , C.P. Singh , Bhuvnesh , P.K. Gupta , P.K. Mukhopadhyay and K.S. Bindra, 2022. Noise-like pulses from all-normal dispersion ytterbium doped all-fiber oscillator with semiconductor saturable absorber, J. Opt. vol. 24 pp. 064015
5.	Pradeep K Gupta, C.P. Singh, P K Mukhopadhyay and K S Bindra,2022. Studies on passively Q-switched ytterbium doped all-fiber laser using fiber optic ring resonator, J. Opt. vol. 24, pp. 054012.
6.	Nitish Paul , C.P. Singh , P.K. Gupta , Bhuvnesh , P.K. Mukhopadhyay and K.S. Bindra,2022. Rectangular dark pulses in all-normal dispersion fiber oscillator, Optics & Laser Technology, vol. 147, pp. 107641.
7.	Pradeep K Gupta, C.P. Singh, P K Mukhopadhyay and K S Bindra, 2021. All-normal dispersion ytterbium-doped fiber laser mode locked by nonlinear multimode interference, Appl. Opt. vol. 60,pp. 3888.
8.	Sunita Ahlawat, Amarjeet Singh, Pranab K. Mukhopadhyay, Rashmi Singh and K.S. Bindra, 2021. Nanosecond laser induced glass particle deposition over steel mesh for long-term superhydrophilicity and gravity driven oil water separation, Materials Chemistry and Physics, vol. 263, pp. 124343.
9.	Pradeep K Gupta, C.P. Singh, P K Mukhopadhyay and K S Bindra, 2020. Generation of widely wavelength tunable Q-switched pulses in Ytterbium doped all-fiber laser, Laser Phys. vol. 30, pp.095105.
10.	Nitish Paul, B Bhuvnesh, P. K. Gupta, C. P. Singh, P. K. Mukhopadhyay and KS Bindra, 2020. Dual-wavelength rectangular pulses in a mode-locked ytterbium-doped fiber laser, Laser Physics, vol.30, pp. 075103-1-6.