



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>Shovan K. Majumder</i>	
Designation	<i>Professor</i>	
Research Area	<i>Bio-photonics, Raman spectroscopy, optical tweezers, phototherapy, nano-photonics</i>	
Research Profile	<p><i>Dr. Majumder's primary research interest is in the area of bio-photonics for improved healthcare. His multidisciplinary research group is actively involved in the development of novel techniques based on various principles of optical spectroscopy and imaging such as Raman spectroscopy, Raman optical tweezers, depth-sensitive optical spectroscopy, hyper-spectral imaging etc. to aid in rapid and non-destructive characterization of the biochemical and morphological properties of biological samples. The group is also involved in R & D on the development of light based therapeutic approaches for treatment of tumor as well as inactivating various microorganisms for treatment of upper respiratory tract, oral cavity and chronic wound infections. The objective is to translate these techniques to clinical applications in various oncological and non-oncological diseases.</i></p>	
Ten Selected Recent Publications		
1.	<i>Aniket Chowdhury, Yashveer Singh, Uttam das, Deepak Waghmare, Raktim Dasgupta and Shovan Kumar Majumder, "Effects of mobile phone emissions on human red blood cells", Journal of Biophotonics, doi: 10.1002/jbio.202100047 (2021).</i>	
2.	<i>Mrinalini Sharma, Alok Dube and Shovan Kumar Majumder, "Antibacterial photodynamic activity of photosensitizer-embedded alginate-pectin-carboxymethyl cellulose composite biopolymer films", Lasers Med. Sci. doi: 10.1007/s10103-020-03083-2 (2020).</i>	
3.	<i>Surjendu Bikash Dutta, Hemant Krishna, Khan Mohammad Khan, Rashmi Shrivastava, Khageswar Sahu, Sharad Gupta and Shovan K Majumder, "Drop-coating deposition Raman spectroscopy for quantitative detection of urinary</i>	



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	<i>creatinine: a feasibility study”, Laser Phys. 30 085602 (2020).</i>
4.	<i>Khan Mohammad Khan, Surjendu Bikash Dutta, Nitin Kumar, Anita Dalal, Amrita Srivastava, Hemant Krishna and Shovan Kumar Majumder, “Inverse spatially-offset Raman spectroscopy using optical fibers – An axicon lens free approach”, Journal of Biophotonics, https://doi.org/10.1002/jbio.201900140 (2019).</i>
5.	<i>Surjendu Bikash Dutta, Rashmi Shrivastava, Hemant Krishna, Khan Mohammad Khan, Sharad Gupta and Shovan K. Majumder, “Nanotrap-Enhanced Raman Spectroscopy: An Efficient Technique for Trace Detection of Bioanalytes”, Analytical Chemistry, 91,5, 3555-3560 (2019).</i>
6.	<i>Aniket Chowdhury, D Waghmare, R. Dasgupta and S.K. Majumder, “Red blood cell membrane damage by light-induced thermal gradient under optical trap” J Biophotonics. 11(8):e201700222. doi: 10.1002/jbio.201700222 (2018).</i>
7.	<i>K.M. Khan, N. Ghosh, S.K Majumder, “Off-confocal Raman spectroscopy (OCRS) for subsurface measurements in layered turbid samples”, Journal of Optics; 18 (9): 095301 (2016).</i>
8.	<i>Khan Mohd. Khan, Ragesh Kumar, Hemant Krishna, K. Divakar Rao and Shovan K. Majumder, “A dual-modal optical system combining depth-sensitive laser induced fluorescence (LIF) spectroscopy and optical coherence tomography (OCT) for analyzing layered biological tissue”, Biomedical Spectroscopy and Imaging; 5: 313–324 (2016).</i>
9.	<i>Khan K.M., Dutta S.B., Krishna H., Majumder S.K., “Inverse SORS for detecting a low Raman-active turbid sample placed inside a highly Raman-active diffusely scattering matrix – A feasibility study”, Journal of Biophotonics, Vol. 9, no. 9, p. 879-887, Sep. 2016.</i>
10.	<i>K M Khan, S K Majumder and P K Gupta “Cone-shell Raman spectroscopy (CSRS) for depth-sensitive measurements in layered tissue” J. Biophotonics, 8(11-12):889-96 (2015), doi: 10.1002/jbio.201400125.</i>