



## NSHM Knowledge Campus, Durgapur,

### Publications

#### Journal Publications:

1. "Temperature-dependent photoluminescence from nanostructured silicon: role of quantum-confined Bloch states and interfacial defects", S. Basu, U. Ghanta, S. Khan, M. Pramanik, R. Thangavel, B. Pal, S. M. Hossain, *Physica E: Low-dimensional Systems and Nanostructures* 175, 116380 (2025).
2. "Hot-carrier radiative recombination through phonon confinement in silicon nanocrystals embedded in colloidal xerogel matrix", S. Biswas, A. Nandi, U. Ghanta, B. Jana, S. Mukhopadhyay, H. Saha, and S. M. Hossain, *Journal of Applied Physics* 130, 033102 (2021).
3. "Effect of phonon confinement on photoluminescence from colloidal silicon nanostructures", U. Ghanta, M. Ray, S. Biswas, S. Sardar, T. K. Maji, S. K. Pal, N. R. Bandyopadhyay, B. Liu and S. M. Hossain, *Journal of Luminescence* 201, 338 (2018).
4. "Electrical Transport through Array of Electrochemically-etched Silicon Nanorods", U. Ghanta, S. Singh, M. Ray, N. R. Bandyopadhyay, S. Ganapathy and S. M. Hossain, *Physica status solidi (a)* 214, 1600879 (2017).
5. "Unipolar resistive switching and tunneling oscillations in isolated Si-SiO<sub>x</sub> core-shell nanostructure", U. Ghanta, M. Ray, N. R. Bandyopadhyay and S. M. Hossain, *Nanotechnology* 27, 455702 (2016).
6. "Photoluminescence from Oxidized Macroporous Silicon: Nano-Ripples and Strained Silicon Nanostructures", M. Ray, A. Jana, U. Ghanta, N. R. Bandyopadhyay and S. M. Hossain, *IEEE Transactions on Device and Materials Reliability* 13, 87 (2012).
7. "Temperature Dependent Photoluminescence from Porous Silicon Nanostructures: Quantum Confinement and Oxide Related Transitions", M. Ray, N. R. Bandyopadhyay, U. Ghanta, R. F. Klie, A. K. Pramanick et al., *Journal of Applied Physics* 110, 094309 (2011).

#### Book Chapter Publications:

8. "Quantum Conductance and Multilevel Switching in Resistive Random Access Memory", U. Ghanta and D. Pramanik, *Latest Aspects of Applied Sciences & Informatics: The Paradigm Shifting*, pp 101-111 (2022) (ISBN: 978-93-93878-60-1, Publisher: New Delhi Publishers).
9. "Analytical Study of Water Resources and Water Quality Parameters", K. Misra, U. Ghanta, B. M. Ghosh, S. Sarkar, M. Mondal, D. Garai, N. Deora, A. Abeddin, A. Kumar, G. Lohar and G. Kumari, *Latest Aspects of Applied Sciences & Informatics: The Paradigm Shifting*, pp 69-86 (2022) (ISBN: 978-93-93878-60-1, Publisher: New Delhi Publishers).

10. "Trap Assisted Transport in Silicon Nanorods", U. Ghanta and S. M. Hossain, *Advances in Computer, Communication and Control, Lecture Notes in Networks and Systems*, Vol 41, pp 385–390 (2019) (ISBN: 978-981-13-3122-0, Publisher: Springer, Singapore).

### Conference Publications

11. "Current Controlled Switching in Si/PS/a-Si Heterostructure", S. Chakraborty, S. Mandal, U. Ghanta, J. Das and S. M. Hossain, *International Conference on Functional Nanomaterials (ICFNM-2016)*, 28-29 September, 2016, Indian Institute of Engineering Science and Technology, Shibpur, Howrah, India, *Materials Today: Proceedings* 5 (3), 9790-9797 (2018) (ISSN: 2214-7853, Publisher: Elsevier).

12. "Effect of Dimethylformamide, Current Density and Resistivity on Pore Geometry in P-type Macroporous Silicon", S. Halder, A. De, S. Chakraborty, S. Ghosh and U. Ghanta, *International Conference on Advances in Manufacturing*

and *Materials Engineering (AMME-2014)*, December 19-20, Sri Sairam Engineering College and Sri Sairam Institute of Technology, Tamil Nadu, India, *Procedia Materials Science* 5, 764–771 (2014) (ISSN: 2211-8128).

13. "Irreversible Quenching of Photoluminescence from Silicon Quantum Dots in Low Magnetic Field", U. Ghanta, M. Ray, N. R. Bandyopadhyay and S. M. Hossain, *12th International Conference on Fiber Optics and Photonics, OSA Technical Digest (online) (Photonics-2014)*, Paper S5A.46, December 13-16, 2014, IIT, Kharagpur, India (ISBN: 978-1-55752-882-7).

14. "Superliner Photo Response in Colloids of Silicon Quantum Dots", U. Ghanta, M. Ray, N. R. Bandyopadhyay and S. M. Hossain, *National Conference on Emerging Technology and Applied Sciences, 2014 (NCETAS 2014)*, February 15- 16, 2014, Modern Institute of Engineering & Technology, Bandel, Hooghly. *International Journal of Innovative Research in Science, Engineering and Technology* 3 (6), 15-18 (2014) (ISSN: 2319 – 8753, Publisher: Ess & Ess Research Publications).

15. "Photoluminescence Mechanism in Silicon Quantum Rods Studied by Time- Resolved Spectroscopy", U. Ghanta, M. Ray and S. M. Hossain, *International Conference on Recent Trends in Applied Physics and Material Science (RAM- 2013)*, February 1-2, 2013, Govt. college of Engineering and Technology, Bikaner, Rajasthan. *AIP Conference Proceedings* 1536, 277-278 (2013) (ISSN: 1551-7616).

Conference Proceedings (International/ National)

16. "Temperature Dependent and Time-Resolved Spectroscopic Studies on Photoluminescence of Porous Silicon", U. Ghanta, M. Ray, N. R. Bandyopadhyay and S. M. Hossain, *International Conference on Functional Nanomaterials (ICFNM-2016)*, 28-29 September, 2016, Indian Institute of Engineering Science and Technology, Shibpur, Howrah, India, Page No. 115.

17. "Effect of Photon Injection on the Lateral Metal-Insulator-Semiconductor Porous Silicon Tunnel Structure", U. Ghanta, P. Kar, S. Ghosh, A. Bose and S. M. Hossain, *National Conference on Emerging Trends in Engineering and Science 2015 (ETES-2015)*, 16-17 July, 2015, Asansol Engineering College, Asansol, Bardwan, India, *Trak-4*, pages 255-257 (ISBN: 978-93-84869-63-2).

18. "Fabrication of Macroporous Silicon and its Electrical Behavior Study with Acetone", S. Halder, S. S. Mondal, S. Chakraborty, A. Chakraborty, J. Akhtar and U. Ghanta, *National Conference on Emerging Trends in Engineering and Science 2015 (ETES-2015)*, 16-17 July, 2015, Asansol Engineering College, Asansol, Bardwan, India. *Trak-4*, pages 275-278 (ISBN: 978-93-84869-63-2).

19. "Effect of UV Laser Radiation on the Photoluminescence Properties of Silicon Quantum Dot Colloids", U. Ghanta, M. Ray, N. R. Bandyopadhyay and S. M. Hossain, *National Conference on Nanomaterials and Devices (NCONAD-2013)*, October 3-5, 2013, Department of Physics NIT Srinagar, Kashmir, Pages 61-63 (ISBN: 978-93-82880-70-7).

20. "Linearly Polarized Photo Luminescence from Colloidal Silicon Quantum Dots", U. Ghanta, A. Jana, M. Ray, N. R. Bandyopadhyay and S. M. Hossain, *National Conference on Recent Advancement In Materials and Technology (NCRAMT- 2011)*, June 24-26, 2011, School of Applied Science, Haldia Institute of Technology, Haldia, India.

21. "Photoluminescence from Porous Silicon having Regular Macromorphology", U. Ghanta, National Review and Coordination Meeting of Nano Mission Council (NSNT2011), IIT Delhi, February 25-27, 2011. (Poster no. SP-8), Page No. 134.

22. "Signature of phonon bottleneck in colloidal suspension of silicon nanorods", U. Ghanta, T. S. Basu, A. Jana, M. Ray, N. R. Bandyopadhyay, A. K. Pramanik, S. M. Hossain, International Conference of Fundamental And Applications of Nanoscience and Technology (ICFANT-2010), Jadavpur university, 9-11 December, 2010. Page No. 253.

23. "Studies on Microscopic Current-Voltage Characteristics of Nanocrystalline Silicon using Conducting AFM tip", U. Ghanta, M. Ray, N. R. Bandyopadhyay, S. M. Hossain, International Symposium On Advances In Nanomaterials, (ANM -2010), Central Glass and Ceramic Research Institute, CSIR, Kolkata, December 6- 7, 2010, (Poster no. CP-79), Page No. 127.