Resume

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RESEARCH INTERESTS:

- **Porous Templates**: - Nanoporous Alumina and its Templates
- **Energy Harvest Materials**: - 1D semiconductor nanomaterials; polymer nanocomposites based solar encapsulants (Biomimicking / Soft lithography)
- **Environmental Nanotechnology**: Optical/Colorimetric detection of pesticides and Antibacterial formulations using Green Nanoparticlesagainst crop infecting bacteria.
- **Composite Materials**: - Organic semiconductor nanomaterials and composites

CORE COMPETENCIES

- **Material Synthesis**: - Electrochemical and Sol-Gel technique for nanoporous materials and nanowires, wet chemical method for growth of hierarchical nanostructured Si
- **Material Characterization**: - Spectroscopy (UV-Vis, Photoluminescence), Microscopy (Optical) and Electron (SEM), Surface roughness analysis (AFM), Chromatography (HPLC)
- **Graphic designing & Software**: MS-Office, LabView, OriginPro, Solid Works (basics), 3D Builder etc.

EDUCATION

Ph.D. Nanoscience and Nanotechnology(2019)
***Major*:** Smart Solar materials and Nanostructured polymeric optical concentrators
***Thesis*:** Realization of Nanostructured Thin Film with Advanced Encapsulation Approach for Solar Cell Application.
University: Amity University Uttar Pradesh, Noida, Uttar Pradesh, India.

PROJECTS/GRANTS

S. No	Title of Project	Funding Agency	Status	PI/Co-PI	Budget (in Lakhs)
1	Development of Nanoporous Photonic Chip for Naked Eye Detection of Pesticide Traces	**JK DST (2023-2024)**	**Ongoing**	**PI**	02.00
Total budget					**02.00**

PUBLICATIONS (Year-wise)

1. M. Kour, B.C. Sharma, **H.S. Bindra**, A. Singh and P Singh, Indian Agriculture with Special Reference to Jammu and Kashmir- An Overview, Biological Forum – An International Journal 15(1): 308-314(2023) ***(NAAS Rating – 5.11)***
2. M Choudhury, **H.S. Bindra**, K Singh, AK Singh, R Nayak, Antimicrobial polymeric composites in consumer goods and healthcare sector: A healthier way to prevent infection, Polymers for Advanced Technologies (**2022**) 33 (7), 1997-2024 ***(Impact Factor – 3.34)***
3. K. Pandey, **H.S. Bindra**, S Jain, R Nayak, "Sustainable lotus leaf wax nanocuticles integrated polydimethylsiloxane sorbent for instant removal of oily waste from water" *Colloids and Surfaces A: Physicochemical and Engineering Aspects* (**2021**), 634, 127937. ***(Impact Factor – 4.53)***
4. M Choudhury, **H.S. Bindra**, J Mittal, R Nayak, "Evaluation of mechanical properties of carbon HDPE composites" *Materials Today: Proceedings* (**2021**).
5. K.Pandey, **H.S. Bindra**, D.Paul and R. Nayak, "Smart Multi-Tasking PDMS Nanocomposite Sponges for Microbial and Oil Contamination Removal from Water" *J Polym Res,* vol. **27**, 189 (**2020**).***(Impact Factor – 2.42)***
6. **H.S. Bindra**, Jaikrishna R. and R Nayak, "Simplified and Cost-Effective Technique to Enhance Optical Properties of Microstructured Silicon" *Materials Today: Proceedings,* vol.***28***,1 (**2020**).
7. **H. S. Bindra,** S. C. Roy, A.B.V.K. Kumar, T. Kumeria and R. Nayak, "An Improved Strategy for Transferring and Adhering Thin Nanoporous Alumina Membrane onto Conducting Transparent Electrodes for Template Assisted Electrodeposition of High Aspect Ratio Semiconductor Nanowires with Increased Optical Absorption" *Nanotechnology*, vol. **30,** 9 (**2019**). ***(Impact Factor - 3.55)***
8. **H.S. Bindra**, Jaikrishna R., T. Kumeria and R. Nayak "Rapid Processing of Wafer-Scale Anti-Reflecting 3D Hierarchical Structures on Silicon and Its Templation" *Materials*, vol. **11,** (**2018**). ***(Impact Factor – 3.05)***
9. **H.S. Bindra**, Jaikrishna R., T. Kumeria and R. Nayak, "Rapid and Facile Fabrication of Wafer Scale Silicon Hierarchical Structures with Broadband Ultra High Anti-Reflection Property", *3rd International Electronic Conference on Materials session Optical, Electrical and Magnetic Materials-MDPI AG*, (**2018**).

10. **H. S. Bindra,** S. John, S. C. Roy, O. P. Sinha, S. S. Islam and R. Nayak, "Controlled and Selective Growth of 1D and 3D CdTe Nanostructures Through a Structurally Engineered Porous Alumina Template for Enhanced Optical Applications" *J.Electrochem. Soc.,* vol. **165,** (4), (**2017**). ***(Impact Factor – 3.72)***
11. **H. S. Bindra**, A. B. V. K. Kumar and R. Nayak, "Optical Properties of a Biomimetically Prepared Hierarchical Structured Polydimethyl Siloxane Template for Potential Application in Anti-Reflection and Photovoltaic Encapsulation" *Material Research Express*, vol. **4**, **(2017)**. ***(Impact Factor – 1.92)***
12. D. Rajput, **H. S. Bindra**, A. Saha and R. Nayak "A Simple Low-Cost Approach of Fabricating Nanostructured Polydimethylsiloxane Layer for Application in Solar Cell Encapsulation" *Advanced Science, Engineering and Medicine*, vol. **8**,**(2016).**

PATENTS

1.**H. S. Bindra** and R. Nayak "A facile method of handling and transfer of self-organized thin nanoporous alumina membrane onto a chemically modified TCO substrate with strong adhesion" 2019 Application No. – 201911037566 (Published).