Name : Shekhar Agnihotri

Present designation : **Assistant Professor**
Email and mobile/landline number : shekharagnihotri@gmail.com agnish@niftem.ac.in /0130-2281273

Educational Qualification with affiliation :

- Ph.D. (Nanotechnology), Indian Institute of Technology-Bombay, India (2014)
- M.Tech (Biochemical Engineering), Indian Institute of Technology-BHU, India (2008) (Jointly with Indian Institute of Technology, Kanpur)

Post-Doc assignments : Assistant Professor, TIET Patiala (2014-2020)

Working with NIFTEM since : 2020

Areas of interest and specialisation :

- Biomass valorization through nano-inspired biocatalysis for value-added products
- Nano-enable postharvest technologies using electrospun nanofibers
- Shelf life extension in fresh produce through nano-emulsions
- Delivery of micronutrients in agriculture using hybrid nanomaterials as a vehicle
- Nanocomposites for water disinfection and wastewater treatment
- Designing anti-biofouling biomaterials with hydrogel-based antimicrobial coatings
- Nano-photocatalytic degradation of emerging pollutants and agrichemicals

Research projects (ongoing) : 01

Research projects (Completed) : 06

Books edited : 02

Research publications (Top 5-10) :

1. Dhiman, N. K., Reddy, M. S., & Agnihotri, S.* (2023) Graphene oxide reinforced chitosan/polyvinyl alcohol antibacterial coatings on stainless steel surfaces exhibit superior bioactivity without human cell cytotoxicity. *Colloids and Surfaces B: Biointerfaces*, 227, 113362. (**IF 6.0**)

2. Sillu D., Agnihotri S.* and Reddy MS (2022) Magnetic halloysite nanotube/α-amylase based nanobiocatalytic transformation of food processing waste into an active fermentation ingredient, *ACS Sustainable Chemistry & Engineering*, 10, 31, 10169–10180 (**IF 9.2**).
3. Singh D., Sillu D., Kumar A. and Agnihotri, S.* (2021) Dual nanozyme characteristics of iron oxide nanoparticles alleviate salinity stress and promote growth of an agroforestry tree, *Eucalyptus tereticornis* Sm., *Environmental Science: Nano*, 8, 1308-1325 **(IF 9.4)**
4. Kaur R., Goyal D., and Agnihotri S.* (2021) Chitosan/PVA silver nanocomposite for butachlor removal: Fabrication, characterization, adsorption mechanism and isotherms, *Carbohydrate Polymers*, 262, 117906 **(IF 11.2)**
5. Dhiman N. Kaur and Agnihotri S.* (2020) Hierarchically aligned nano silver/chitosan-PVA hydrogel for point-of-use water disinfection: Contact-active mechanism revealed, *Environmental Sciences: Nano*, 7, 2337-2350 (**IF 9.4**)
6. Sillu D. and Agnihotri S.* (2019) Cellulase immobilization onto magnetic halloysite nanotubes: Enhanced enzyme activity and stability with high cellulose saccharification, *ACS Sustainable Chemistry & Engineering*, 8 (2), 900-913 (**IF 9.2**).
7. Agnihotri S., Mukherji S., and Mukherji S. (2019) Impact of background water quality on disinfection performance and silver release of immobilized silver nanoparticles: Modeling disinfection kinetics, bactericidal mechanism and aggregation behavior, *Chemical Engineering Journal, 372, 684-696* **(IF 16.2)**
8. Chakraborty D., Sharma V., Agnihotri S., Mukherji S., and Mukherji S. (2017) Disinfection of water in a batch reactor using chloridized silver surfaces, *Journal of Water Process Engineering*, 16, 41-49. (**IF~7.3**)
9. Agnihotri S., Bajaj G., Mukherji S., and Mukherji S. (2015) Arginine assisted immobilization of silver nanoparticles on ZnO nanorods: An enhanced and reusable antibacterial substrate without human cell cytotoxicity, *Nanoscale*, 7, 7415-7429. **(IF 8.3)**
10. Agnihotri S.**,** Mukherji S., and Mukherji S. (2013) Immobilized silver nanoparticles enhance contact killing and show highest efficacy: Elucidation of the mechanism of bactericidal action of silver, *Nanoscale*, 5(16), 7328-7340. **(IF 8.3)**

Awards/Fellowships/ Special Attainments :

- Listed among top 2% scientists worldwide as declared by Stanford University and Elsevier (2023)
- Indo (DST)-Japan (JSPS) "*Young Researcher Fellowship*" (2018)
- DST Young Scientist Award, Govt. of India (2016)
- Institute award for excellence in Ph.D. Thesis, IIT Bombay: Best PhD thesis (2015)
- Institute graduate fellowship, IIT Bombay (2009)
- GATE qualified: AIR 15
- 02 Best Paper awards in International conference, held outside India; 06 Best Poster presentation award in International Conferences (held within India)
- Life Member, Biotech Research Society of India

STUDENTS SUPERVISED: Ph.D Thesis: 03 (completed), Master Thesis: 26, UG: 16