

Department of Chemistry, IIT Madras
Ph.D. Research Colloquium
(2nd Seminar)

Sustainable engineered nanomaterials for affordable clean water

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Date: 07.11.2019

Venue: CB 310

Time: 3:00 pm

Abstract

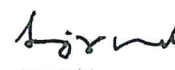
Water purification and water quality monitoring are the two most challenging objectives of the industrial and domestic world. Beside development-induced demands, there are also geographical or geological reasons for water pollution.¹ Arsenic [As(III) and As(V)] and fluoride (F⁻) are the two most widespread water contaminants which have affected millions of people worldwide. Creation of affordable materials capable of trace level detection and scavenge dissolved contaminants to deliver drinking water of international quality is a problem of advanced materials. Although, conventional materials have been used extensively, nanomaterials are emerging as important alternatives in this regard.² We have developed cellulose based sustainable hybrid nanocomposites which show superior performance in terms of arsenic and fluoride uptake and are affordable solutions for water remediation by means of adsorption.³ We have also developed mobile-based device using nanomaterials for real-time water quality monitoring. It can colorimetrically detect low levels of fluoride in water. Also, atomically precise luminescent nanoclusters have been used to detect arsenic in water. This seminar will give an overview of the research done on nanomaterials for their application in the field of water purification.

References

1. Tesh, S. J. *et al.*, Adv. Mater. **2014**, 26, 6056–6068.
2. Wang, C. *et al.*, Chem. Soc. Rev. **2016**, 45, 5107-5134.
3. Mukherjee, S. *et al.*, ACS Sustain. Chem. Eng., **2019**, 7 (3), 3222-3233.


Guide


Seminar Coordinator


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