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Synthesis and characterization of hybrid nanoparticles for biomedical and environmental remediation applications

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Iron oxide nanoparticles have attracted tremendous attention as potential candidates for enhancing the contrast in magnetic resonance imaging, targeted therapeutics, and remediation agents because they are inherently less toxic and magnetic. This talk will demonstrate an approach to sustainably use iron oxide nanoparticles as platforms for developing improved therapeutics and oil spill remediation agents. The synthesis of hybrid nanoparticles as multifunctional therapeutics will be presented in detail using Pt-iron oxide nanoparticles as the model system. The talk will also describe the application of magnetic nanoparticles to develop engineered materials for treatment of BP oil spill samples. The significance of material properties and material characterization of these new nanoparticles in exploring enhanced applications will be highlighted throughout the talk.

Biography

Soubantika Palchoudhury is a Visiting Assistant Professor in Chemical Engineering at the University of Tennessee Chattanooga. She has completed her PhD from The University of Alabama (2012) and Post-doctoral studies from Yale University, University of South Carolina, and The University of Alabama. She has published over 20 articles in journals like *Nano Letters*, *Langmuir*, and *ChemComm* and three book chapters. Her research on water-soluble iron oxide nanoparticles has been highlighted in *Nature*. She has also reviewed for several high-impact journals. Her research interests lie in the synthesis of hybrid nanoparticles like Pt-iron oxide and CuZn₂InS₄ for biomedical and energy applications.

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