UniSysCat - Colloquium

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Start Time: Wednesday, August 23, 2023 05:15 pm

End Time: Wednesday, August 23, 2023 06:30 pm

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or via Zoom

Functional advanced porous materials: Representative examples for clean energy, safe drinking water and as heterogeneous catalysts

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In terms of significant impact, the World Economic Forum documented water crisis as the largest worldwide risk. Due to accelerating urbanization along with rapid industrialization, an ever growing number of toxic contaminants are entering the fresh water supplies. In the priority list, the U.S. Environment Protection Agency (EPA) listed metal-based oxo-anions as potential toxic inorganic pollutants in waste water. [1] In my talk, I will present some novel advanced porous materials for highly selective and efficient extraction of various hazardous toxic metal ions exist as oxoanions (such as, $HAsO_4^{2-}$, SeO_4^{2-}, ReO_4^-(surrogate for radioactive TcO_4^{2-}), CrO_4^{2-} etc.) from water, for safe drinking water.I will discuss about highly selective and efficient Uranium extraction, from natural seawater for potential applications of Uranium as renewable and clean nuclear energy source and also, from ground water for safe drinking water. [2-5]. Very briefly, at the end I will also discuss about few examples of advanced porous materials as efficient heterogeneous catalysts.

References: 1) Book: Metal-Organic Frameworks (MOFs) for Environmental Applications 1st Ed. (Ed.: S K. Ghosh),

Elsevier, **2019**, https://doi.org/10.1016/C2017-0-01721-4.

2) Mollick, S. ; Fajal, S, ; Saurabh, S. ; Mahato D. ; and **Ghosh, S. K**.

ACS Cent. Sci. **2020,** 6, 1534.

3) Fajal, S.; Mandal, W.; Mollick, S.; More, Y.D.; Torris, A. ; Saurabh, S. ; Shirolkar, M.M. ; and **Ghosh S. K.**

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4) Mollick, S.; Saurabh, S.; More, Y.D.; Fajal, S.; Shirolkar, M. M.; Mandal, W.; **Ghosh, S. K**.;

Energy & Environmental Science **2022**,15, 3462-3469.

5. Fajal, S.; Hassan, A.; Mandal, W.; Shirolkar, M. M.; Let, S.; Das, N.; Ghosh S. K.

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Dr. Prashant W. Menezes

Organizer