

## RESEARCH OUTPUT

NOTABLE PUBLICATIONS FROM THE DEPARTMENT (2018 – 2020) : I.F. > 3

(DEPARTMENTAL AVERAGE I.F.: 2.8)

### 2021

Sow, P. K.; Singhal, R.; Sahoo, P.; Radhakanth, S. Fabricating low-cost, robust superhydrophobic coatings with re-entrant topology for self-cleaning, corrosion inhibition, and oil-water separation. *Journal of Colloid and Interface Science*. 2021, 600, 358-372. <https://doi.org/10.1016/j.jcis.2021.05.026>. (I.F.: 8.128)

Gupta, A.; Ayithapu, P.; Singhal, R. Study of the electric field distribution of various electrospinning geometries and its effect on the resultant nanofibers using finite element simulation. *Chemical Engineering Science*. 2021, 235, 116463. <https://doi.org/10.1016/j.ces.2021.116463>. (I.F.: 4.311)

Mukherjee, Anupam, Aravind Satish, Aditi Mullick, Jyotsna Rapolu, Siddhartha Moulik\*, Anirban Roy\*, and Asim K. Ghosh\*. "Paradigm Shift toward Developing a Zero Liquid Discharge Strategy for Dye-Contaminated Water Streams: A Green and Sustainable Approach Using Hydrodynamic Cavitation and Vacuum Membrane Distillation." *ACS Sustainable Chemistry & Engineering* (2021). (IF : 8.198)

Anupam Mukherjee, Aditi Mullick, Siddhartha Moulik\*, and Anirban Roy\*. "Oxidative degradation of emerging micropollutants induced by rotational hydrodynamic cavitating device: A case study with ciprofloxacin." *Journal of Environmental Chemical Engineering* (2021): 105652. (IF : 5.909)

Shubham Lanjewar, Anupam Mukherjee, Priyesh Khandewal, Asim K. Ghosh\*, Aditi Mullick, Siddhartha Moulik\*, Anirban Roy\*, "Thermodynamics of Synthesis and Separation Performance of Interfacially Polymerized "Loose" Reverse Osmosis Membrane: Benchmarking for Greywater Treatment" (Accepted), *Chemical Engineering Journal* (IF : 13.273)

### 2020

Sow, P. K.; Ishita; Singhal, R. Sustainable approach to recycle waste polystyrene to high-value submicron fibers using solution blow spinning and application towards oil-water separation. *Journal of Environmental Chemical Engineering*, 2020, 8(2), 102786. <https://doi.org/10.1016/j.jece.2018.11.031>. I.F.: 5.909

Mukherjee, A., Mullick, A., Teja, R., Vadthya, P., **Roy, A.**, Moulik, S., Performance and Energetic Analysis of Hydrodynamic Cavitation and Potential Integration with Existing Advanced Oxidation Processes: A Case Study for Real Life Greywater Treatment. *Ultrasonics Sonochemistry* (Accepted) **(I.F. : 7.279, h-index: 109)**

Varigala, S.K., **Krishnaswamy, S.**, Hegarty-Craver, M., Madhavan, P., Basil, M., Rosario, P., Raj, A., Barani, V., Cid, C.A., Grego, S. and Luetzgen, M., 2020. Field testing of an onsite sanitation system on apartment building blackwater using biological treatment and electrochemical disinfection. *Environmental Science: Water Research & Technology*. **(I.F. : 4.195, h-index: 20)**

Zhou, Z., Lu, D., Li, X., Rehman, L.M., **Roy, A.** and Lai, Z., 2020. Fabrication of highly permeable polyamide membranes with large “leaf-like” surface nanostructures on inorganic supports for organic solvent nanofiltration. *Journal of Membrane Science*, 601, p.117932. **(I.F. : 7.015, h-index: 214)**

Maarisetty, D., Mahanta, S., Sahoo, A.K., Mohapatra, P. and **Baral, S.S.**, 2020. Steering the charge kinetics in dual-functional photocatalysis by surface dipole moments and band edge modulation: A defect study in TiO<sub>2</sub>-rGO-ZnS composite. *ACS Applied Materials & Interfaces*. **(I.F. : 8.456, h-index: 169)**

Parsekar, S.U., Velankanni, P., Sridhar, S., Haldar, P., Mate, N.A., Banerjee, A., Antharjanam, P.S., Koley, A.P. and **Kumar, M.**, 2020. Protein binding studies with human serum albumin, molecular docking and in vitro cytotoxicity studies using HeLa cervical carcinoma cells of Cu (ii)/Zn (ii) complexes containing a carbohydrazone ligand. *Dalton Transactions*, 49(9), pp.2947-2965. **(I.F. : 4.052, h-index: 168)**

**Baral, S.S.**, Dionisi, D., Maarisetty, D., Gandhi, A., Kothari, A., Gupta, G. and Jain, P., 2020. Biofuel production potential from wastewater in India by integrating anaerobic membrane reactor with algal photobioreactor. *Biomass and Bioenergy*, 133, p.105445. **(I.F. : 3.537, h-index: 156)**

## **2019**

Singhal, R.; Ishita; Sow, P. K. Integrated Polymer Dissolution and Solution Blow Spinning Coupled with Solvent Recovery for Expanded Polystyrene Recycling. *Journal of Polymers and the Environment*, 2019, 27(6), 1240-1251. <https://doi.org/10.1007/s10924-019-01427-w>. I.F.: 3.667

Maarisetty, D. and **Baral, S.S.**, 2019. Defect-induced enhanced dissociative adsorption, optoelectronic properties and interfacial contact in Ce doped TiO<sub>2</sub>: Solar photocatalytic

degradation of Rhodamine B. *Ceramics International*, 45(17), pp.22253-22263. (I.F. : 3.450, h-index: 89)

Maarisetty, D. and **Baral, S.S.**, 2019. Synergistic effect of dual electron-cocatalyst modified photocatalyst and methodical strategy for better charge separation. *Applied Surface Science*, 489, pp.930-942. (I.F. : 5.155, h-index: 159)

Mouna, H.M. and **Baral, S.S.**, 2019. A bio-hydrometallurgical approach towards leaching of lanthanum from the spent fluid catalytic cracking catalyst using *Aspergillus niger*. *Hydrometallurgy*, 184, pp.175-182. (I.F. : 3.465, h-index: 95)

Kadu, K., Ghosh, G., Panicker, L., Kowshik, M. and **Ramanan, S.R.**, 2019. Role of surface charges on interaction of rod-shaped magnetic hydroxyapatite nanoparticles with protein. *Colloids and Surfaces B: Biointerfaces*, 177, pp.362-369. (I.F. : 3.973, h-index: 131)

Deshmukh, K., **Ramanan, S.R.** and Kowshik, M., 2019. Novel one step transformation method for *Escherichia coli* and *Staphylococcus aureus* using arginine-glucose functionalized hydroxyapatite nanoparticles. *Materials Science and Engineering: C*, 96, pp.58-65. (I.F. : 5.08, h-index: 104)

## 2018

Sahu, P., **Krishnaswamy, S.**, Ponnani, K. and Pande, N.K., 2018. A thermodynamic approach to selection of suitable hydrate formers for seawater desalination. *Desalination*, 436, pp.144-151. (I.F. : 6.035, h-index: 155)

**Krishnaswamy, S.**, Deshpande, A. and Ponnani, K.N., 2018. Modeling of unmixed combustion based packed bed reactor system for heat transfer applications. *Chemical Engineering Science*, 178, pp.367-376. (I.F. : 3.372, h-index: 165)

## PATENTS FILED

- **India – Patent Application No.: 201811014242**  
**Dated:** April 13, 2018  
**Title:** PROCESS AND SYSTEM FOR ROUTING LNG COLD ENERGY FOR

DESALINATING SEA WATER AND POWER GENERATION

Status: Published

Assignees: BITS Pilani, GAIL (India) Ltd.

Inventors: Srinivas Krishnaswamy, Sahu Parul, Ponnani Krishnaswamy  
Neelakantan, Parivesh Chugh, Nawal Kishore Pande

- **India – Patent Application No.: 201911011261**  
**Dated:** March 22, 2018  
**Title:** A CO-CHLORINATION PROCESS FOR PARAFFINS AND POLYOLEFINS  
**Assignees:** BITS Pilani, ABSTC  
**Inventors:** Srinivas Krishnaswamy, More Vinod Kadu, Singh, Madan Kumar, Ganvir Vivek, Ponnani Krishnaswamy
- **India – Patent Application No.: 201921016099**  
**Dated:** April 23, 2019  
**Title:** A PROCESS AND APPARATUS FOR CONTINUOUS FREEZE CRYSTALLIZATION  
**Assignees:** BITS Pilani, GAIL (India) Ltd.  
**Inventors:** Srinivas Krishnaswamy, Sahu Parul, Ponnani Krishnaswamy  
Neelakantan, Parivesh Chugh, Nawal Kishore Pande
- **India – Patent Application No.: 202011006181**  
**Dated:** 12<sup>th</sup> Feb 2020  
**Title:** AN APPARATUS TO DETERMINE THE FOULING TENDENCY OF A LIQUID UNDER DYNAMIC CONDITIONS  
**Assignees:** BITS Pilani, BPCL Corporate R&D.  
**Inventors:** Pragya Singh, Srinivas Krishnaswamy, Ponnani Krishnaswamy, Jaya Rawat, Ankur Verma