

## Dr. Archana Kumari

Assistant Professor

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### Educational Qualification

- PhD from CSIR-Indian Institute of Petroleum (IIP), Dehradun (2018)
- M.Sc. (Chemistry) from Patna University (2010)

### Academic Achievements

- Qualified CSIR-JRF in 2012
- Qualified GATE in 2011
- Qualified NET in 2011

### Personal Skills

- Innovative and smart working.
- Effective communication skill and friendly nature.

### Research Publications

- **Archana Kumari**, Sanat kumar. Pyrolytic degradation of polyethylene in autoclave under high pressure to obtain fuel. *J. Anal. Appl. Pyro.* 124 (2017), 298-302.
- **A. Kumari**, A. Kumar, S. Kumar, S. K. sahu. Synthesis of green fluorescent carbon quantum dots using waste polyolefins residue for Cu<sup>2+</sup> ion sensing and live cell imaging. *Sens. Actuators: B Chem.* 2017. DOI: 10.1016/j.snb.2017.07.075.
- Kumar, A. Ray, **A. Kumari**, S. K. sahu. IRMOF-3: A fluorescent nanoscale metal organic frameworks for selective sensing of glucose and Fe(III) ions without any modification. *Mater. Sci. Engin. C.* 2018. DOI:10.1016/j.msec.2018.07.039.
- Amit Kumar, **Archana Kumari**, Shwetank Asu, Dipranjan Laha, and Sumanta Kumar Sahu. Synthesis of CDs from  $\beta$ -Cyclodextrin for Smart Utilization in Visual Detection of Cholesterol and Cellular Imaging. *Chemistry Select* 4 (2019), 1–7.
- Amit Kumar, **Archana Kumari**, Poulami Mukherjee, TinkuSaikia, KunalPal, Sumanta KumarSahu. A design of fluorescence-based sensor for the detection of dopamine via FRET as well as live cell imaging. *Microchemical Journal* 159 (2020), 105590.
- Amit Kumar, Shwetank Asu, Poulami Mukherjee, Prabhakar Singh, **Archana Kumari**, Sumanta Kumar Sahu. Single-step synthesis of N-doped carbon dots and applied for dopamine sensing, in vitro multicolor cellular imaging as well as fluorescent ink. *Journal of Photochemistry & Photobiology, A: Chemistry* 406 (2021) 113019.

### **Workshop/Conferences/Seminar**

- International Seminar on Green Chemistry: Synthesis, processing and devices (ISGCSPD-2018), 6-7 April 2018, VKSU, Ara, Bihar. Research paper presented "Carbon Dots Synthesized from Jatropha Curcas: A Unique Turn-off Fluorescent Strategy for Selective Detection of  $\text{Co}^{2+}$  ions and Live Cellular Imaging."
- International Conference on Advances in Analytical Sciences (ICAAS-2018), 15-17 March 2018 at CSIR-IIP, Drehradun-248005. Research paper presented "Highly Selective and Sensitive Detection of Dopamine Using Photoluminescence Carbon Dots."
- 4th 3R International Scientific Conference on Material Cycles and Waste Management (3RINCS), 8-10 March 2017 at India Habitatat Centre, New Delhi. Research paper presented "Thermal and Catalytic Degradation of Waste Plastics Collected from Railway to Useful Products."
- 22nd National Symposium on Catalysis (CATSYMP 22): Catalysis for better tomorrow, 7-9 Jan 2015 at CSIR-CSMCRI, Bhavnagar-364002, Gujarat. Research paper presented.

### **Area of Interest**

- Waste plastic degradation for useful products.
- Green synthesis of carbon quantum dots from waste bio-materials for the sensing, imaging and drug delivery.
- Fabrication of polymer functionalised carbon dots and their applications as sensors.

[Archana Kumari]