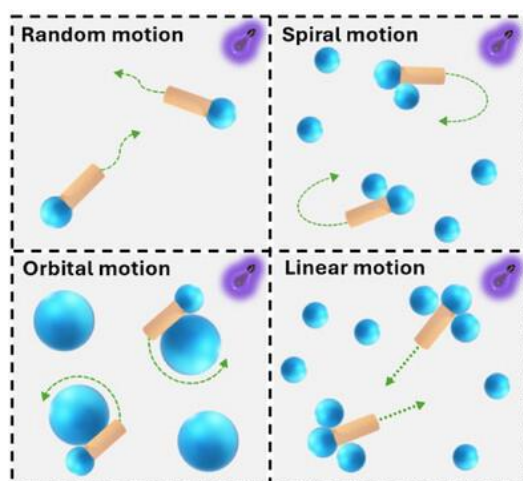


Publication Alert!

A team of researchers led by **Dr. Dhruv Pratap Singh** from the **Active Micro and Nano Systems (AMN) Lab** at the **Indian Institute of Technology Bhilai** has developed a novel class of rod-shaped active matter systems capable of autonomous motion in fluid media when activated by external light sources. Interestingly, these photo-activated microswimmers exhibit diverse and dynamic swimming behaviors when navigating through environments filled with passive particles. This work has been recently published in a prestigious journal, '**Small: Wiley-VCH**' (<https://doi.org/10.1002/sml.202410997>).

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Suwendu Kumar Panda, a PhD student in the lab worked as a key researcher of this project, Their work investigates how the swimming patterns of these microswimmers can be modulated due to the attachment of passive particles of varying numbers and sizes along their bodies. Remarkably, the presence of these passive particles significantly alters the motion of the swimmers, leading to intriguing multimodal behaviors such as spiral motion, linear propulsion, and orbital or circular trajectories.

This work highlights the role of active-passive interactions in crowded, heterogeneous media and also paves the way for advancements in micro/nanorobotics. The ability of these light-driven swimmers to adapt their motion and transport passive cargo holds great promise for future applications in targeted drug delivery and cargo manipulation inside microfluidic systems.