

Integration of BiOI nanosheets into bubble-propelled micromotors for efficient water purification

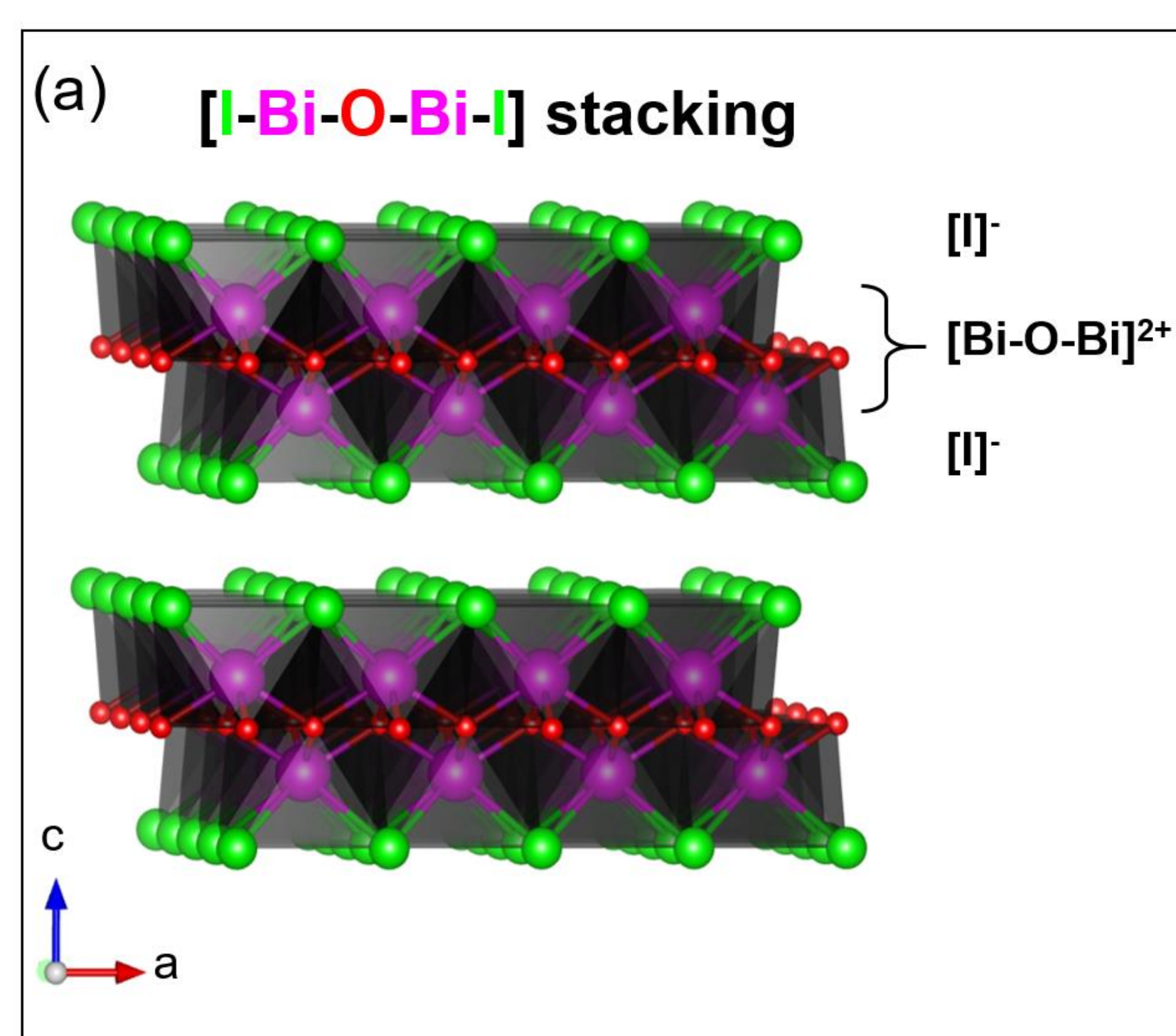
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Unpublished work

Highlights

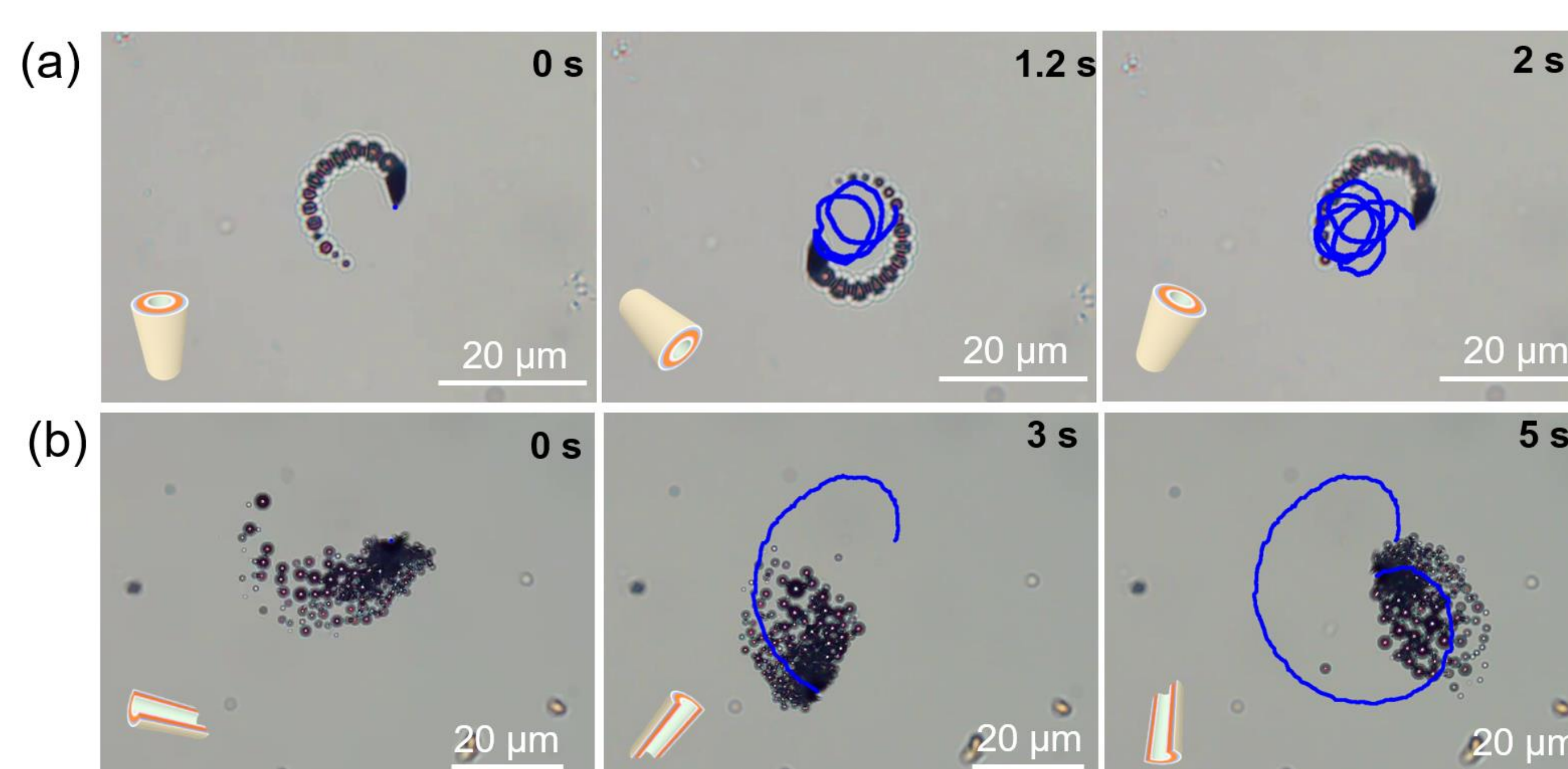
- BiOI-based micromotors are fabricated using the template-assisted electrodeposition method.
- 2D BiOI nanosheets endow the micromotors with visible-light-excited photocatalytic activity.
- Efficient removal of organic pollutants can be achieved on the basis of on-the-fly catalytic chemistry.

Structure of BiOI



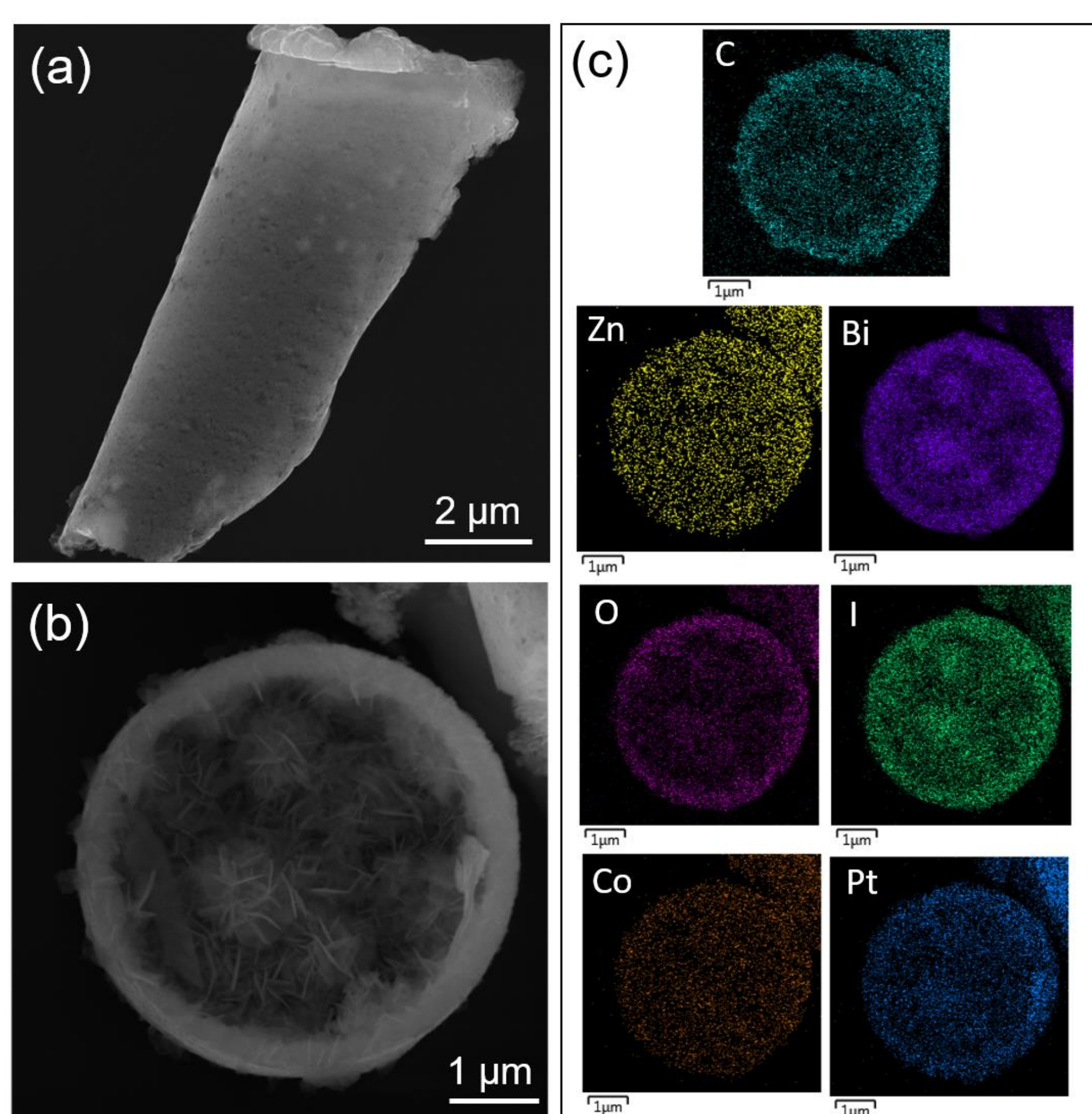
Layered crystal structure of BiOI with stacked [I-Bi-O-Bi-I] drawn by VESTA software.

Motion behavior of micromotors



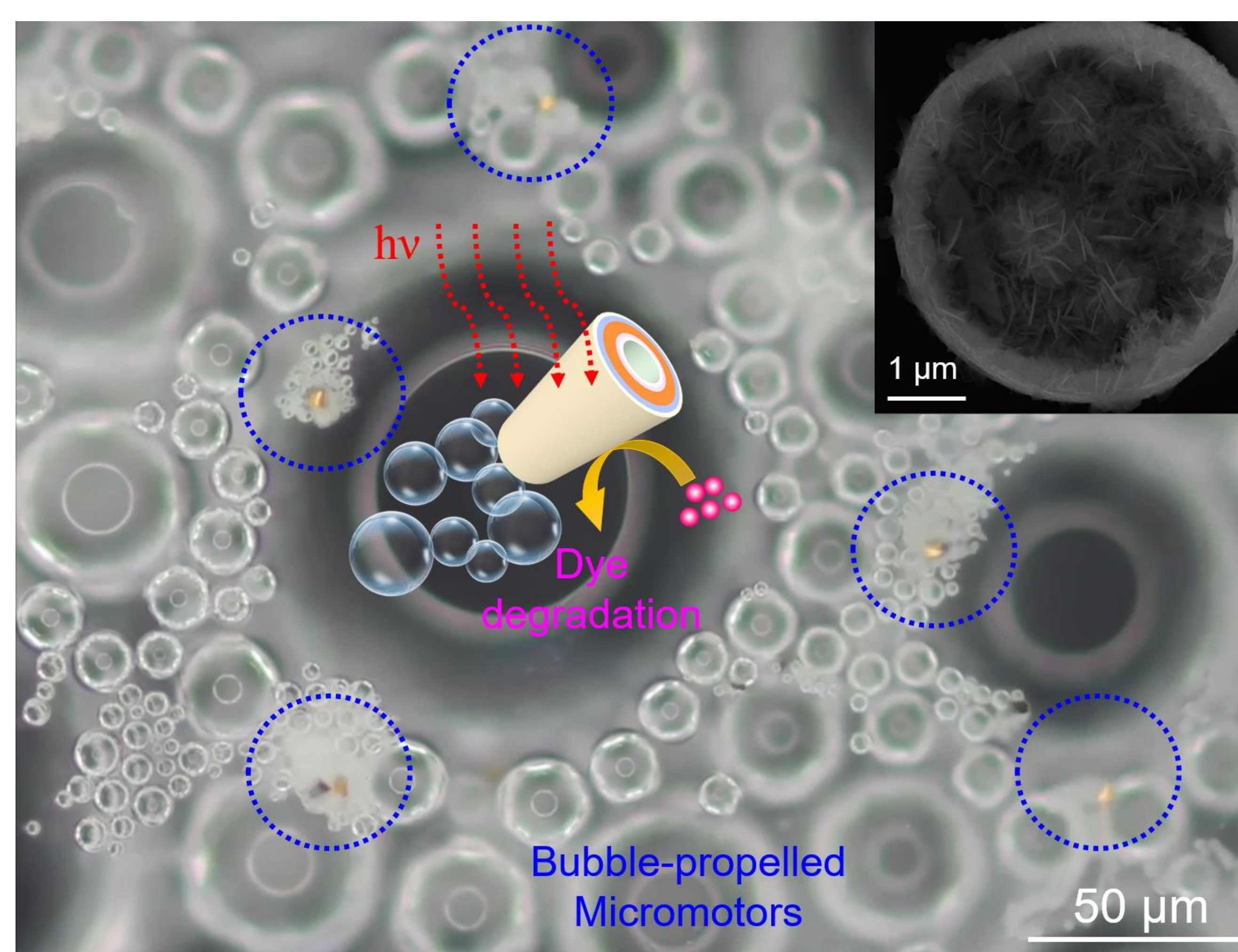
Time-lapse microscope images of (a) a tubular micromotor and (b) an arc micromotor moving in 5% H_2O_2 and 0.125 wt% SDS. The tracked trajectories of micromotors were highlighted in blue.

Morphology and composition of micromotors



(a) SEM image of BiOI-based micromotors. (b) Cross-sectional image of micromotors and corresponding (c) elemental composition from EDX analysis.

Swarm of micromotors and dye degradation



Collective behavior of bubble-propelled BiOI-based micromotors for the photocatalytic degradation of pollutants in the contaminated water under the illumination of visible light. The micromotors were highlighted via blue dashed cycles.

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