

Light-Driven MOFs-based Micromotors with Self-Floating Characteristics for Water Sterilization

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Supporting Information

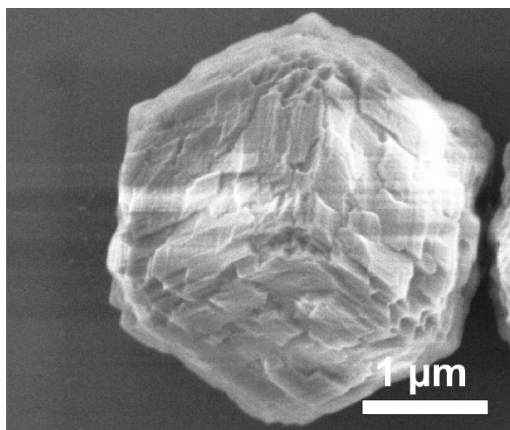


Fig. S1 SEM image of ZIF-8 microparticle.

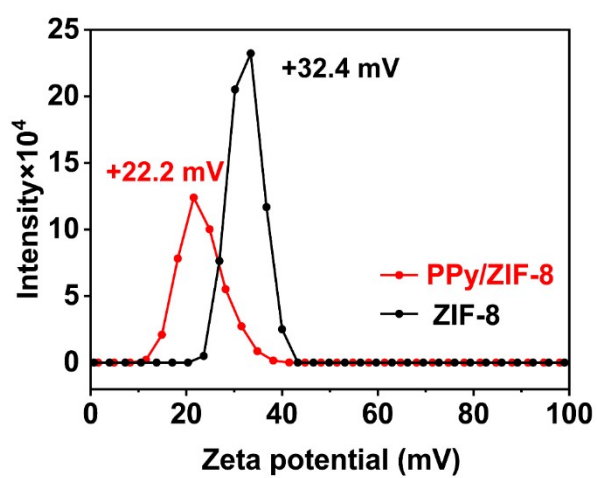


Fig. S2 Zeta potential of PPy/ZIF-8 and ZIF-8 microparticles at pH 7.0.

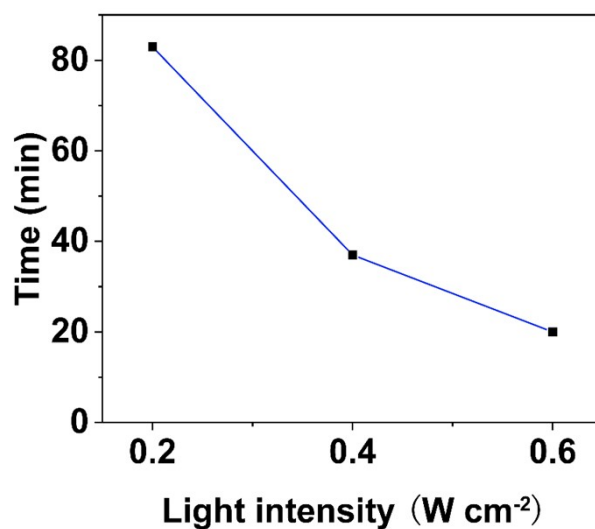


Fig. S3 The relationship between the intensity of blue light and the time required for PPy/ZIF-8 micromotors (1.5 mg mL^{-1}) to completely move to the top of the suspension.

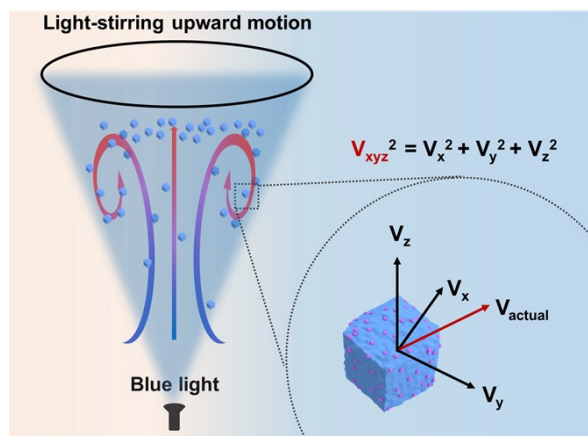


Fig. S4 The motion speed calculation measurement of the MOFtors in the XY plane.

The average speed calculated in this work is the motion speed on the XY planes, i.e., V_{xy} , due to the difficulty in the motion measurement in the Z direction (Fig. S4). In reality, the motion speed measurement of the micromotors should be in 3D space. Unfortunately, we could not perform it in our lab. For micron or submicron-sized motors, a conventional wide-field optical microscope is typically the primary instrument to visualize micro/nanomotors movement. However, the short depth-of-focus of the optical microscopy system, typically around 2-3 μm , creates a trade-off between the magnification and the depth-of-focus. It can create a challenge when attempting to track the motion of MNMs with vertical movement, as they may quickly move out of the ideal focus plane, resulting in a defocused image. Thus, we test the motion speed of micromotors on a plane (XY plane), i.e., V_{xy} , while the actual speed value of 3D motion should be larger according to the mathematic relationship (**Fig. S4**).