

Supporting Information

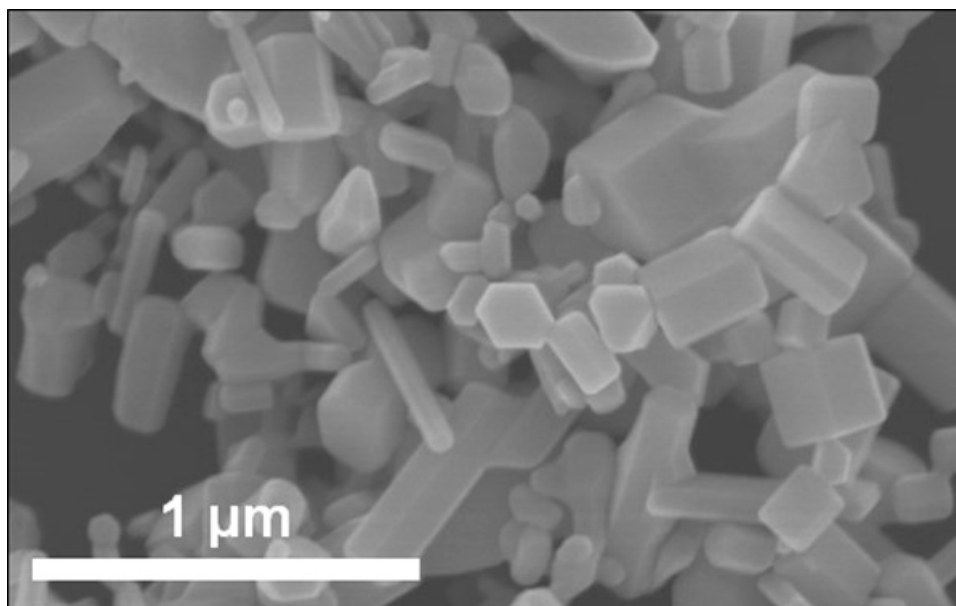


Figure S1. A scanning electron microscopy image of the zinc oxide nanoparticles used in the experiments.

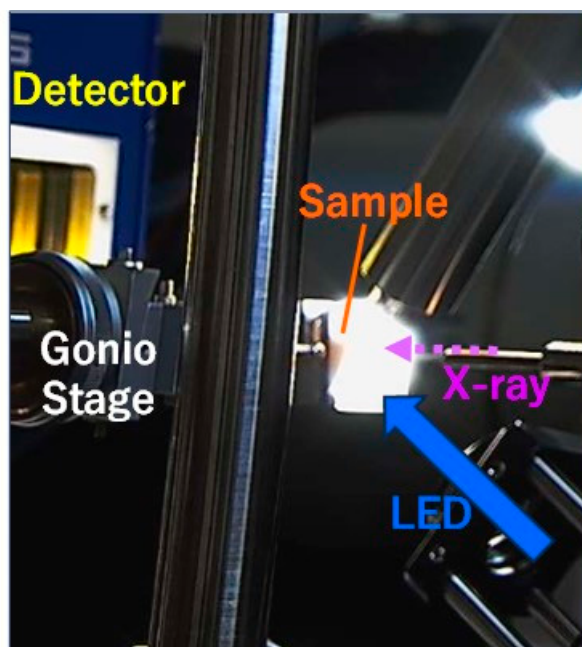


Figure S2. A photographic image of the XRD measurement setup. Diffraction X-rays transmitted through the sample were detected.

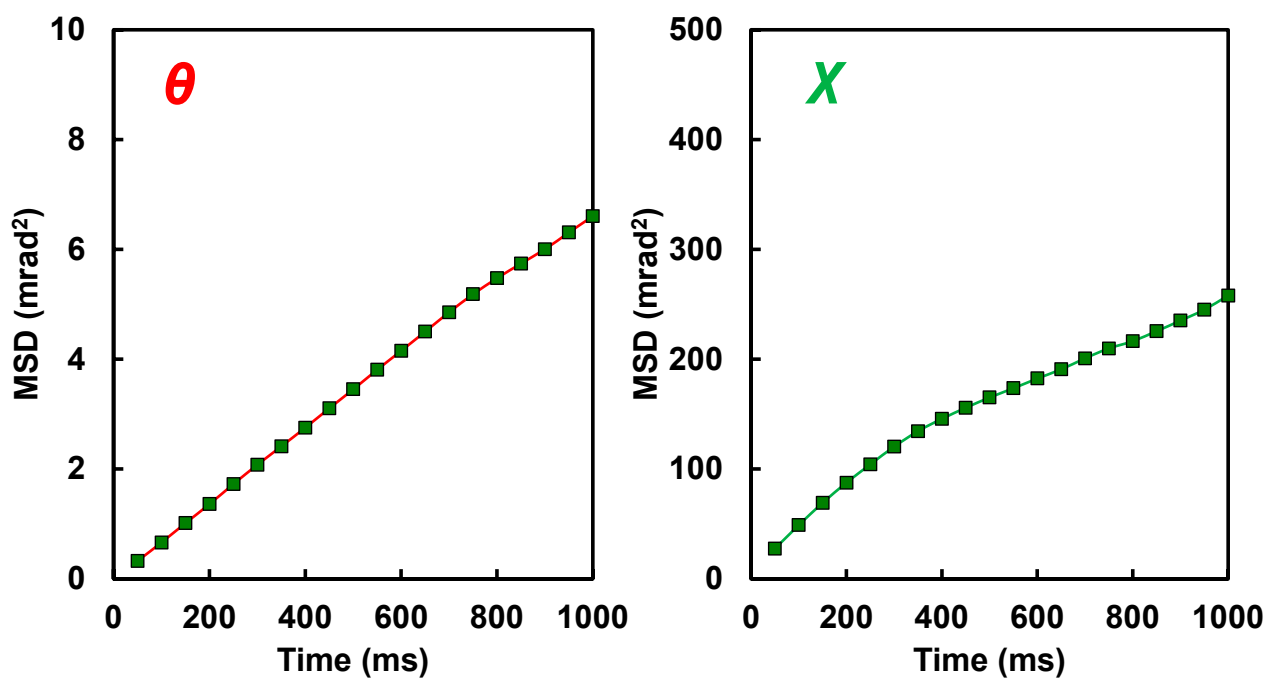


Figure S3. MSD curves excluding the rotational displacement at the moment when the 4-MAAB crystalline film completely melted at the light intensity 200 mW cm⁻².

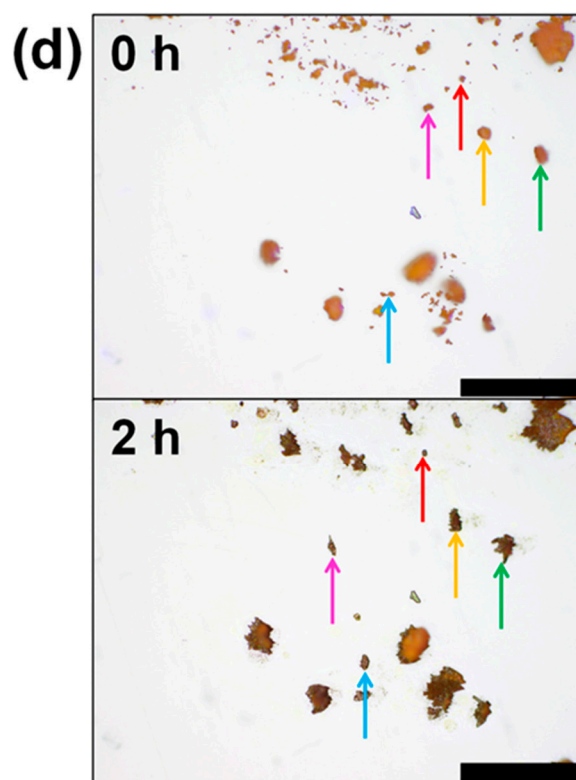
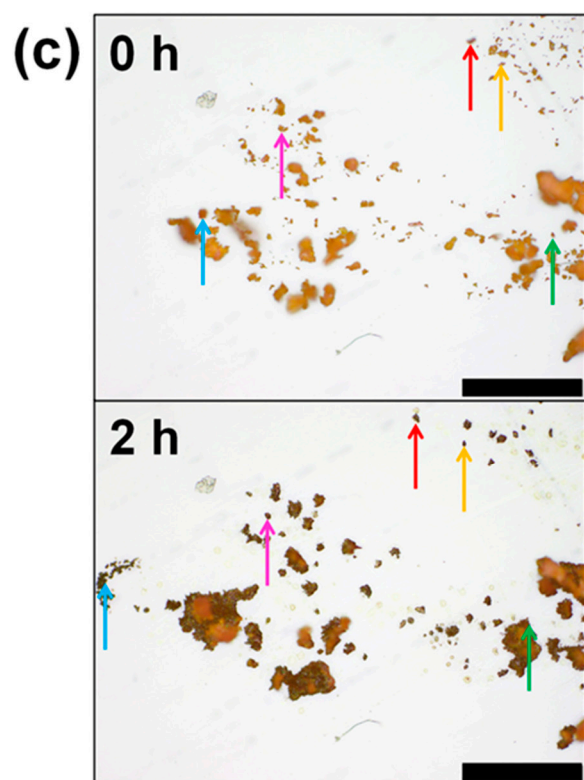
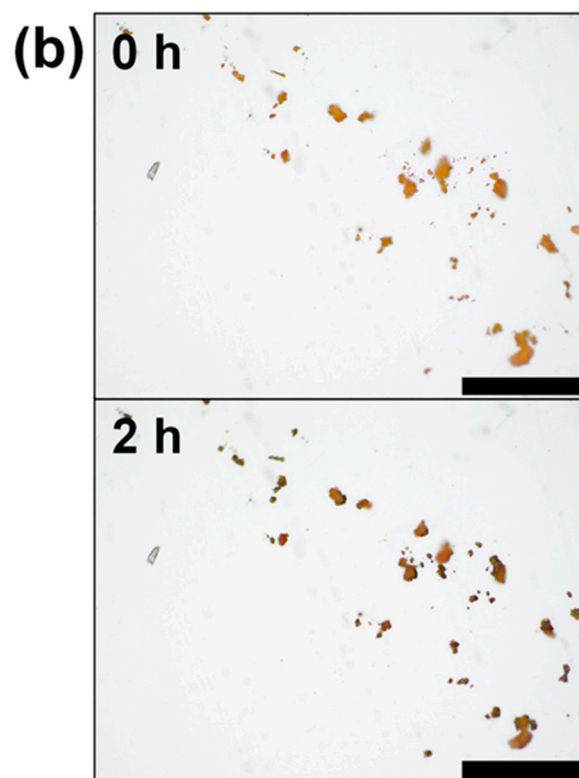
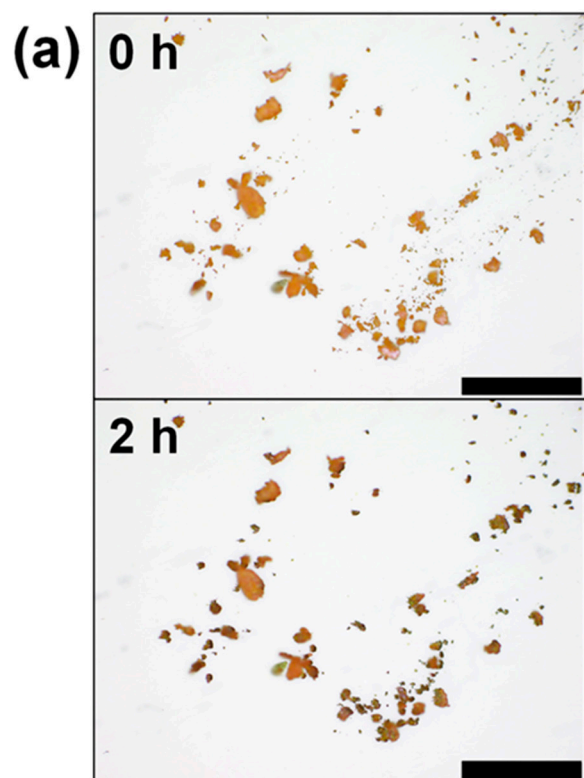


Figure S4. (a-d) Optical microscope images of 4-MAAB crystals on polyimide films before and after light irradiation at the light intensity (a) 50, (b) 100, (c) 200, and (d) 300 mW cm⁻² (scale bar: 200 μ m). Blue LED light was irradiated for 2 h. The arrows shown in Figure 1c, d point to 4-MAAB crystals that exhibited photo-induced crawling motion.

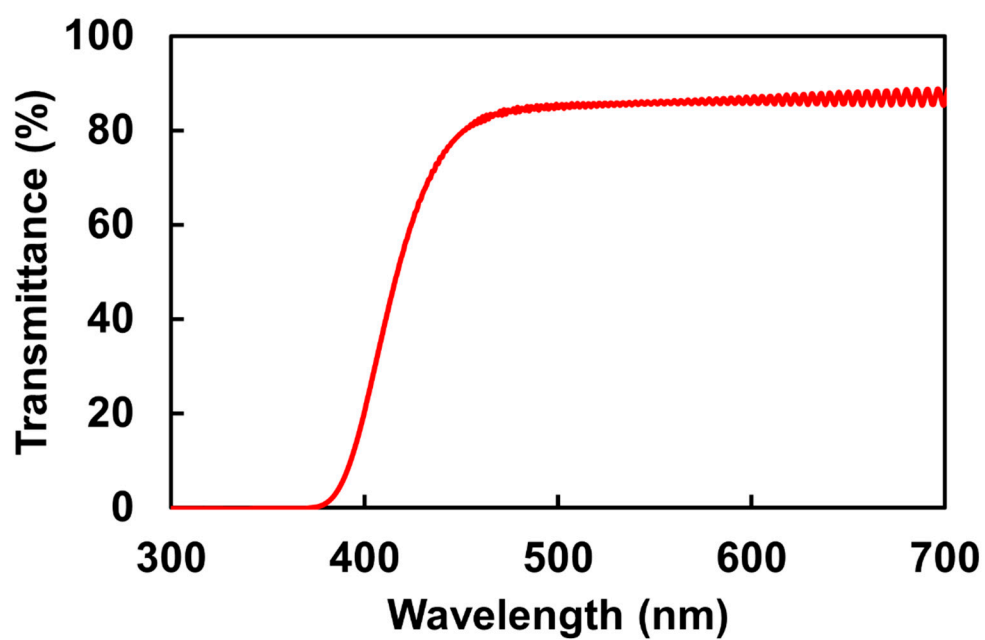


Figure S5. Transmittance spectrum of the polyimide film used in the experiment.

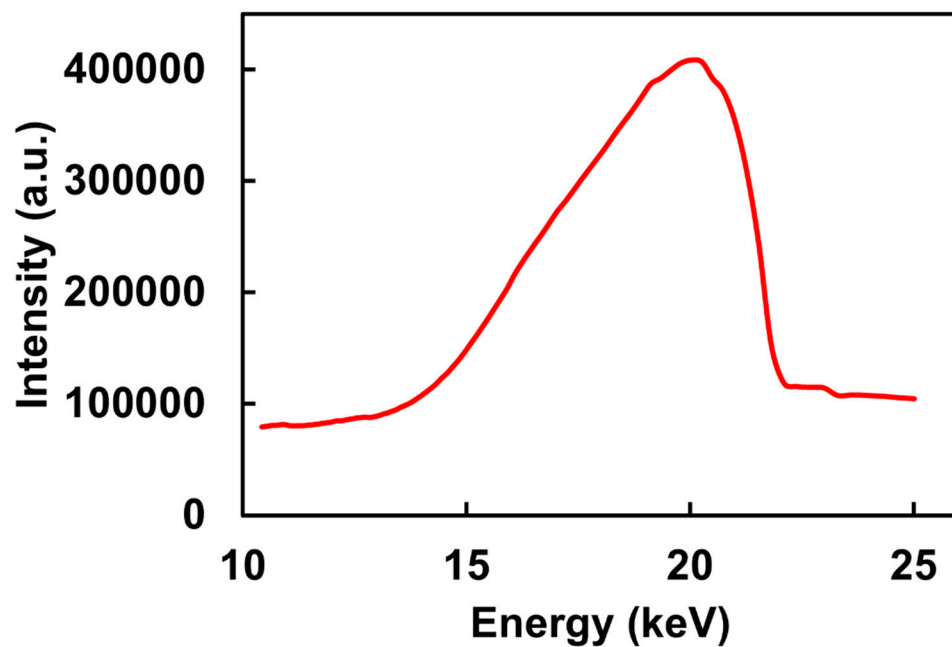


Figure S6. An intensity spectrum of the white X-ray.



Movie_S1.mp4

Movie S1. Time-resolved XRD pattern of 4-MAAB powder crystals containing ZnO nanoparticles under 200 mW cm⁻² blue light irradiation. (Video fast-forwarded 5 × compared to real time; MP4)



Movie_S2.mp4

Movie S2. Melting behavior of a 4-MAAB crystalline thin film containing ZnO nanoparticles under under 200 mW cm⁻² blue light irradiation. (Video fast-forwarded 5 × compared to real time; MP4)



Movie_S3.mp4

Movie S3. Time-resolved XRD pattern of a 4-MAAB crystalline thin film containing ZnO nanoparticles under 200 mW cm⁻² blue light irradiation. (Video fast-forwarded 5 × compared to real time; MP4)