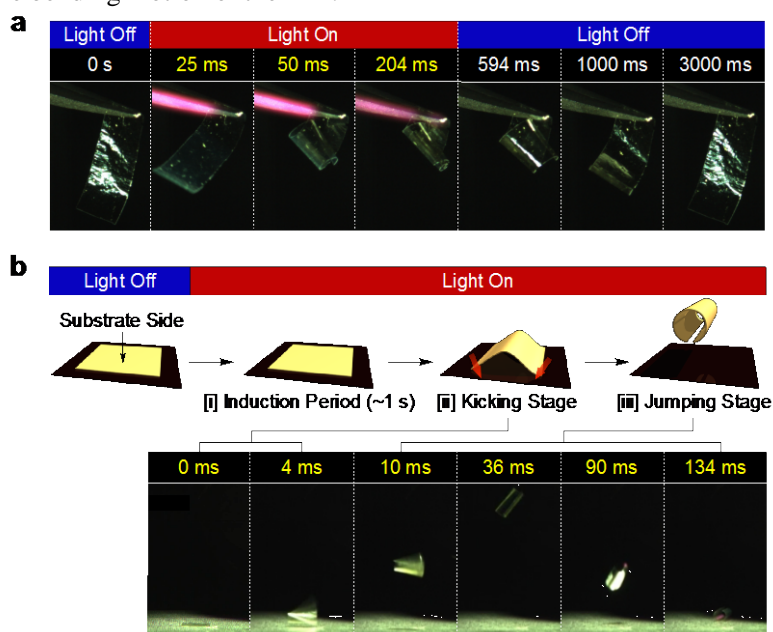


Ultra-high Speed Film Actuator Based on Carbon Nitride Polymer

Daigo Miyajima

Emergent Soft Matter Function Research Group, RIKEN Center for Emergent Matter for Science

We have developed an ultra-high speed film actuator driven by adsorption/desorption of water molecules, which can curl up within 50 msec by UV light irradiation (Fig. a). Owing to its light weight and high speed bending motion, the film can easily jump high by heating or UV light irradiation (Fig. b). The key to these anomalous features is a highly ordered two-dimensional carbon nitride polymers (CNP) we developed. The highly oriented CNP allows for an efficient conversion of water absorption and desorption into the bending motion of the film.¹⁾



1) H. Arazoe, D. Miyajima*, *et al.*, *Nature Materials*, **15**, 1084–1089 (2016)