**Description of Additional Supplementary Files**

File name: Supplementary Movie 1

Description: **Light-driven bending of OPA.** The OPA (10 × 0.5 × 0.07 mm3) turns into a bended structure from a straight structure after the switch on of laser, and recovers after the switch off of laser. The power of laser is 120 mW.

File name: Supplementary Movie 2

Description: **OPA wind s and unwinds a pipe.** The OPA (10 × 0.5 × 0.07 mm3) winds and unwinds a pipe, with the laser on and off, respectively, imitating the function of the tail of a chameleon. The diameter of pipe is ~3 mm.

File name: Supplementary Movie 3

Description: **OPA captures an ant.** The OPA (10 × 0.5 × 0.07 mm3) captures an ant after the switch on of laser, imitating the function of the tongue of a chameleon. The weight of ant is ~20 mg.

File name: Supplementary Movie 4

Description: **OPA gripper captures a small cuboid-1.** The two arms of the OPA gripper with an initial outward bending configuration bend inwards to capture and lift a cuboid (7 × 3.5 × 4 mm3) with the switch on of laser.

File name: Supplementary Movie 5

Description: **OPA gripper captures a small ball.** The two arms of the OPA gripper with an initial outward bending configuration bend inwards to capture and lift a small ball (4 mm of diameter) with the switch on of laser. With the switch off of laser, the OPA gripper release the small ball.

File name: Supplementary Movie 6

Description: **OPA gripper captures three small balls glued together.** The two arms of the OPA gripper with an initial outward bending configuration bend inwards to capture and lift three small balls glued together with the switch on of laser. With the switch off of laser, the OPA gripper release the small balls. The diameter of each small ball is 4 mm.

File name: Supplementary Movie 7

Description: **Oppositely bending of the two arms of OPA gripper.** The two arms of the OPA gripper with an initial inward bending configuration bend inwards further with the switch on of laser. With the switch off of laser, the OPA gripper recovers its initial shape.

File name: Supplementary Movie 8

Description: **OPA gripper captures a small cuboid-2.** The two arms of the OPA gripper with an initial inward bending configuration bend inwards further to capture and lift a cuboid (8 × 3 × 3 mm3) with the switch on of laser.