

Materials List for:

Free-form Light Actuators — Fabrication and Control of Actuation in Microscopic Scale

Hao Zeng¹, Piotr Wasylczyk², Camilla Parmeggiani^{1,3}, Daniele Martella^{1,4}, Diederik Sybolt Wiersma¹

¹European Laboratory for Non-Linear Spectroscopy, University of Florence

²Institute of Experimental Physics, Faculty of Physics, University of Warsaw

³CNR-INO

⁴Chemistry Department, University of Florence

Correspondence to: Diederik Sybolt Wiersma at wiersma@lens.unifi.it

URL: <https://www.jove.com/video/53744>

DOI: [doi:10.3791/53744](https://doi.org/10.3791/53744)

Materials

Name	Company	Catalog Number	Comments
Molecular: LC monomer	SYNTHON Chemicals GmbH & Co. KG	ST03866	~78 mol% in the mixture
Molecular: LC crosslinker	SYNTHON Chemicals GmbH & Co. KG	ST03021	20 mol% in the mixture
Molecular: Azo dye	Synthesis referring to Ref. 6		1 mol% in the mixture. Light sensitive component, can be excluded in the fabrication for heat driven actuators.
Molecular: Initiator	Sigma	Irgacure 369	1 - 2 mol% in the mixture
Spacer	Thermo scientific		Microsphere with diameter from 10 to 100 μ m.
IP-L	Nanoscribe GmbH		
UV curing glue	Homemade		IP-L with 1 wt% initiator (Irgacure 369)
Microscope cover slide	MENZEL-GLÄSER		Diameter: 1 or 3 mm, Thickness: 0.16 - 0.19 mm
UV LED lamp	Thorlabs	M385L2-C4	Wavelength: 385 $\pm$ 10 nm
532 nm laser	Shanghai Dream Lasers	SDL-532-500T	500 mW laser
Direct Laser Writing system	Nanoscribe GmbH		
Hot plate	Linkam Scientific Instruments Ltd.	PE120	Temperature range: -20 to 120 °C
Microscope	Zeiss	Axio Observer A1	With crossed polarizers
Micro-manipulator	Narishige	MHW-3	