

Abstract Submitted  
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**Capillary origami**<sup>1</sup> CHARLOTTE PY<sup>2</sup>, LIONEL DOPPLER, JOSE BICO, BENOIT ROMAN, PMMH (UMR 7636 CNRS/ESPCI/P7/P6) Paris, France, PAUL REVERDY, CHARLES BAROUD, Ladhyx , (UMR 7646) Palaiseau, France — The wet fur of a dog coming out of a pond assembles into bunches: this is the most common effect of capillary forces on elasticity structures (the hairs). From a practical point of view, the deformation of flexible elements by surface tension forces dramatically damages mechanical microsystems or lung airways, but also allows the self-organization of nanotube carpets into well defined clump patterns. But capillary forces may generate even more complex structures when flexible sheets are brought to contact with a liquid interface. Here we present experiments where surface tension folds up an elastic sheet around a deposited water droplet, and discuss the different possible shapes obtained. These self-folding origami may be used in microsystem design as a convenient and robust way to fold two-dimensional planar patterns into 3-dimensional structures, since surface tension effects are enhanced at small scales.

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