

Abstract Submitted  
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**A capillary Archimedes' screw** BAPTISTE DARBOIS TEXIER, STEPHANE DORBOLO, GRASP, Institute of Physics, University of Liege — As used by Egyptians for irrigation and reported by Archimedes, a screw turning inside a hollow pipe can pull out a fluid against gravity. At a centimetric scale, an analogous system can be found with a drop pending on a rotating spiral which is tilted toward the horizontal. The ascent of the drop to the top of the spiral is considered and a theoretical model based on geometrical considerations is proposed. The climb of the drop is limited by the fluid deposition on the screw at high capillary number and by a centrifugation phenomenon. We find out the range of fluid properties and spiral characteristics for which an ascending motion of the drop is possible. Finally we discuss the efficiency of such system to extract a fluid from a bath at a centimetric scale.

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