

Abstract Submitted
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Underwater smelling by the star-nosed mole ALEXANDER LEE, THOMAS SPENCER, DAVID HU, Georgia Inst of Tech — The star-nosed mole can sniff underwater objects by rapidly blowing and inhaling bubbles. How these mammals manipulate bubbles without losing them is poorly understood. In this experimental study, we show that the peculiar shape of the mole's nose can stabilize bubbles. We laser-cut a series of star-shaped plastic templates and measure the largest angle they can be tilted before bubbles are released. The arms of the star anchor the bubbles in place by enabling the buoyancy forces between the arms to counter the effects of tilt. Based on this finding, we design and construct a mole-inspired underwater sniffing device that uses oscillation of bubbles to feed a metal oxide chemical sensor, a first step in expanding machine olfaction to underwater applications

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