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Air Donuts: Toroidal Bubbles Stabilized by Hydrophobin Protein Surfactant PAUL RUSSO, XUJUN ZHANG, ANDREW GORMAN, PETER YUNKER, Georgia Inst of Tech, WAYNE HUBERTY, BRAD BLALOCK, Louisiana State University — Hydrophobins are surface-active proteins made by fungi. Whereas typical surfactants such as sodium dodecyl sulfate exhibit a great deal of molecular flexibility, hydrophobin protein surfactants behave as globular solids to create strong, thin biofilms at air-water interfaces. It has been known for a long time that hydrophobin surfactants can stabilize bubbles in unusual shapes, including rods of striking aspect ratio. Under appropriate conditions, these structures can be reformed into air-filled toroids. These "air donuts" are stable for hours or even days and feature high surface area.

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