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Spider capture thread: form and function SUNGH-
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Technology, CHRISTOPHE CLANET, Laboratoire Hydrodynamique,
Ecole Polytechnique, JOHN BUSH, Department of Mathematics, Mas-
sachusetts Institute of Technology — We present the results of a
combined theoretical and experimental investigation of spider capture
thread. While the radial threads in a spider web are simply cylindri-
cal, the circumferential threads are pre-wound helices immersed in a
viscous fluid. These so-called capture threads are subject to an insta-
bility reminiscent of Rayleigh-Plateau that results in the formation of
a series of droplets along the thread, each filled with a series of coils.
We demonstrate that this instability is a natural example of capillary
origami that will arise when the surface tension exceeds the tension of the
spring. Moreover, we demonstrate its efficacy in prey capture through
augmenting damping during prey impact.

Prefer Oral Session

Prefer Poster Session

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