

Abstract Submitted
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Twist Helicity in Classical Vortices¹ MARTIN W. SCHEELER, HRIDESH KEDIA, University of Chicago, DUSTIN KLECKNER, University of California, Merced, WILLIAM T. M. IRVINE, University of Chicago — Recent experimental work has demonstrated that a partial measure of fluid Helicity (the sum of linking and writhing of vortex tubes) is conserved even as those vortices undergo topology changing reconnections. Measuring the total Helicity, however, requires additional information about how the vortex lines are locally twisted inside the vortex core. To bridge this gap, we have developed a novel technique for experimentally measuring twist Helicity. Using this method, we are able to measure the production and eventual decay of twist for a variety of vortex evolutions. Remarkably, we observe twist dynamics capable of conserving total Helicity even in the presence of rapidly changing writhe.

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