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Knots in light that persist with time HRIDESH KEDIA, University of Chicago, DANIEL PERALTA-SALAS, Instituto de Ciencias Matematicas, WILLIAM T.M. IRVINE, University of Chicago — Knots in the vortex lines of an inviscid (ideal) fluid persist forever. This led Lord Kelvin to hypothesize that atoms were vortex knots in the ideal aether, starting the field of mathematical knot theory. Surprisingly, knots in the lines of the magnetic (electric) field were shown to persist forever in recently discovered solutions to Maxwell's equations. However, in general, knots in the lines of the magnetic (electric) field do not persist. A natural question arises: when do knots in the lines of the magnetic (electric) field persist? We address this question with the aim of designing knotted light fields, by exploring connections between Maxwell's equations and ideal fluid flow.

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