

Abstract Submitted
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Using Computer-Generated Holograms and Optical Fields to Study Phase Dynamics and Phase Manipulation of Bose-Einstein Condensates DAVID SCHERER, CHAD WEILER, TYLER NEELY, BRIAN ANDERSON, College of Optical Sciences, University of Arizona — Maskless lithographic patterning of computer-generated holograms (CGHs) and diffractive optical elements enables the use of arbitrary-profile optical fields to manipulate Bose-Einstein condensates. This inexpensive and flexible method of tailoring potential wells and potential barriers for trapped condensates permits studies of condensate physics and dynamics in rarely explored regimes. We will describe the CGH creation technique used at the College of Optical Sciences and report on the progress of experiments aimed at studying phase manipulation of Rb-87 Bose-Einstein condensates using this promising tool in the atom optics toolkit.

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