

Abstract Submitted
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Vortex formation by merging multiple trapped Bose-Einstein condensates CHAD WEILER, TYLER NEELY, DAVID SCHERER, BRIAN ANDERSON, College of Optical Sciences, University of Arizona — We have experimentally studied the merging of three trapped Bose-Einstein condensates. We find that, depending on the rate of merging, the final single BEC may contain a single vortex core (for slow merging rates), or multiple cores (for fast merging rates). Similarly, a triple-well trap may initiate the formation of three isolated BECs, but if the barriers between the wells are weak enough, the condensates merge together during their growth; this process can also lead to the formation of vortices in the final BEC. We interpret both scenarios in terms of interference between the initial uncorrelated condensates with indeterminate relative phases. We will discuss the results and interpretation of this experiment (D.R. Scherer, C.N. Weiler, T.W. Neely, B.P. Anderson, cond-mat/0610187, to be published in Phys. Rev. Lett.).

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