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Title:	Inho-mogeneous structures in holographic superfluids. I. Dark solitons
Authors:	Yogendran, K.P. (/jspui/browse?type=author&value=Yogendran%2C+K.P.)
Issue Date:	2010
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Abstract:	We begin an investigation of inhomogeneous structures in holographic superfluids. As a first example, we study domain wall-like defects in the 3+1 dimensional Einstein-Maxwell-Higgs theory, which was developed as a dual model for a holographic superconductor. In [V. Keränen, E. Keski-Vakkuri, S. Nowling and K. P. Yogendran Phys. Rev. D 80 121901 (2009)], we reported on such “dark solitons” in holographic superfluids. In this work, we present an extensive numerical study of their properties, working in the probe limit. We construct dark solitons for two possible condensing operators and find that both of them share common features with their standard superfluid counterparts. However, both are characterized by two distinct coherence length scales (one for order parameter, one for charge condensate). We study the relative charge depletion factor and find that solitons in the two different condensates have very distinct depletion characteristics
Description:	Only IISERM authors are available in the record.
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