Inhomogeneous Phases in Holographic Superfluids[1] KUBRA
YETER, The University of Tennessee, Knoxville, ELEFTHERIOS PA-
PANTONOPOULOS, National Technical University of Athens, GEORGE SIOP-
SIS, The University of Tennessee, Knoxville — We discuss inhomogeneous solutions
of a gravitating system consisting of two $U(1)$ gauge fields and a real scalar field.
One of the $U(1)$ gauge fields determines the chemical potential, whereas the other
one corresponds to a magnetic field interacting with the spin in the boundary the-
ory. We solve the field equations and find a second-order phase transition to an
inhomogeneous phase at a critical temperature which we compute. Below the criti-
cal temperature, the equations are solved perturbatively, and a spatially dependent
charge density is generated. This is compatible with the generation of a charge
density wave in condensed matter systems.

Kubra Yeter
The University of Tennessee, Knoxville

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