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Kaon condensation from lattice QCD WILLIAM DETMOLD, KOSTAS ORGINOS, College of William and Mary/JLab, MARTIN SAVAGE, University of Washington, ANDRE WALKER-LOUD, College of William and Mary, NPLQCD COLLABORATION — Kaon condensation may play an important role in the structure of hadronic matter at densities greater than that of nuclear matter, as exist in the interior of neutron stars. We present the results of the first lattice QCD investigation of kaon condensation obtained by studying systems containing up to twelve negatively charged kaons. Surprisingly, the properties of the condensate that we calculate are remarkably well reproduced by leading order chiral perturbation theory. In our analysis, we also determine the three-kaon interaction from the multi-kaon systems.

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