

Abstract Submitted
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Efimov Resonances and Quantum Degeneracy in a Strongly Mass-Imbalanced Fermi-Bose Mixture KRUTIK PATEL, B.J. DESALVO, JACOB JOHANSEN, CHENG CHIN, James Franck Institute, Enrico Fermi Institute, Department of Physics, University of Chicago — We present observations of Efimov resonances in a ${}^6\text{Li}$ - ${}^{133}\text{Cs}$ mixture near one broad ($s_{res} = 0.71$) and one narrow ($s_{res} = 0.02$) interspecies Feshbach resonance near 890 G. These Feshbach resonances have nearly equal intraspecies scattering length, yet we find a substantial difference in the absolute interspecies scattering length at which the Efimov features occur. Our observation confirms the predicted departure from universal physics near the narrow resonance. Additionally, we report the realization of a stable Bose-Einstein condensate of Cs overlapped with a degenerate Fermi gas of Li in a dual color optical dipole trap. Such a system provides a platform for the study of Fermi-Bose quantum mixtures in the ground state with widely tunable interspecies interactions.

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