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Measurement of Efimov Resonances in Ultracold Li-Cs Mixtures JACOB JOHANSEN, SHIH-KUANG TUNG, KARINA JIMENEZ-GARCIA, COLIN PARKER, CHENG CHIN, The University of Chicago — We report the measurement of a series of three heteronuclear Efimov resonances between Li-6 and Cs-133. The large mass imbalance between these species reduces the geometric scaling factor from 22.7 (homonuclear case) to 4.88, but also increases technical challenges in combining the two species and overlapping the two clouds. We demonstrate a novel trapping scheme, an oscillating time-averaged optical potential (oTOP), which allows us to dynamically change the size and position of our trapping potential to combine both species. Additionally, we demonstrate a novel locking scheme to facilitate high field imaging in Cs. We combine these technical solutions to create ultracold mixtures of Li-6 and Cs-133 for measurement of Efimov resonances and future experiments in few- and many-body physics.

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