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Efimov physics in 6Li atoms[1] DAEKYOUNG KANG, ERIC BRAATEN, The Ohio State University, HANS-WERNER HAMMER, Universitaet Bonn, LUCAS PLATTER, University of Washington — A new narrow three-atom loss resonance associated with an Efimov trimer crossing the three-atom threshold has recently been discovered in a many-body system of ultracold 6Li atoms in the three lowest hyperfine spin states at a magnetic field near 895 G. O'Hara and coworkers have used measurements of the three-body recombination rate in this region to determine the complex three-body parameter associated with Efimov physics. Using this parameter as the input, we calculate the universal predictions for the spectrum of Efimov states and for the three-body recombination rate in the universal region above 600 G where all three scattering lengths are large. We predict an atom-dimer loss resonance at 672 $\pm$2 G associated with an Efimov trimer disappearing through an atom-dimer threshold. We also predict an interference minimum in the three-body recombination rate at 759 $\pm$1 G where the three-spin mixture may be sufficiently stable to allow experimental study of the many-body system.

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