

Abstract Submitted  
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**Magneto-association near an atom-dimer resonance**<sup>1</sup> D. LUO, J.H.V. NGUYEN, R.G. HULET, Department of Physics and Astronomy and Rice Quantum Institute, Rice University, Houston, TX 77005 — Over the past decade the universal scaling of Efimov trimers has been explored in various atomic species by measuring the three-body loss coefficient. An enhancement of the three-body loss at the atom-dimer resonance has been observed,<sup>2,3</sup> but remains unexplained. It has been attributed to an “avalanche mechanism” based on resonant atom-dimer scattering, yet the effectiveness of the hypothesis is under scrutiny.<sup>4,5</sup> We present a new piece to the puzzle. In our work, Feshbach dimers and Efimov trimers are formed near the atom-dimer resonance by RF-association, from a Bose-Einstein condensate of <sup>7</sup>Li atoms. The molecular binding energies are tunable by the broad Feshbach resonance of the atoms in the  $|1, 1\rangle$  state. We observe that the dimer formation rate is significantly enhanced at the atom-dimer resonance. The origin of this enhancement is unclear, but it may be closely related to the enhancement of the three-body loss rate.

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<sup>2</sup>S.E. Pollack, D. Dries, & R.G. Hulet, *Science*, 326, 1683 (2009)

<sup>3</sup>M. Zaccanti et al. *Nature Physics*, 5, 586 (2009)

<sup>4</sup>J. Schuster et al. *Phys. Rev. Lett.* 87, 170404 (2001)

<sup>5</sup>M. Hu et al. *Phys. Rev. A* 90, 013619 (2014)

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