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Efimov Physics in a Fermi Gas

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While Efimov's scenario is often described in the context of identical bosons, the Efimov effect also occurs for three distinguishable fermions provided that at least two of the three scattering lengths are large. I will describe experiments in which we observe the Efimov effect in a Fermi gas of 6Li atoms with equal populations in three different internal hyperfine states. In this system, the three scattering lengths can be tuned by three overlapping Feshbach resonances. We observe several resonantly enhanced three body loss features when either a ground or first excited Efimov trimer crosses the three atom scattering threshold. The variation in the three body recombination rate which spans eight orders of magnitude is well described by Efimov physics. We expect that the Efimov effect will play an important role in future studies of many body phenomena such as "color" superfluidity and quantum magnetism in this system.