

Abstract Submitted  
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**Broad Feshbach resonances in collisions of Dy atoms**<sup>1</sup> P JULIENNE, JQI/NIST, K JACHYMSKI, U Warsaw, T MAIER, I FERRIER-BARBUT, H KARAN, M SCHMITT, M WENZEL, C WINK, T PFAU, U Stuttgart — RF spectroscopy of weakly bound dimers of ultra cold bosonic Dy atoms gives evidence for the emergence of a universal s-wave halo state in a background of chaotic background resonance states. The halo state is associated with a broad magnetic Feshbach resonance. Using a coupled channels theory taking into account the short ranged van der Waals interaction and a correction due to the strong dipole moment of Dy, we are able to extract the scattering length as a function of magnetic field tuning near two such broad resonances. These results offer prospects for tuning the interactions of Dy atoms in a regime where three-body losses are not too strong.

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