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Abstract for an Invited Paper
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Few-body physics for bosonic and fermionic dipoles¹

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This invited talk, coauthored by Jose D’Incao and Chris Greene, will review our theoretical evidence that predicts an Efimov effect for three interacting bosonic polar molecules. Interestingly, the hyperspherical coordinate treatment shows a universal barrier which implies that the three-body parameter is rather accurately known in terms of the dipole length. It was not a foregone conclusion that three bosonic dipoles would exhibit Efimov physics, given that the original derivation and also subsequent work was for systems with short-range interactions only, and moreover, for systems having conserved angular momentum. Despite the fact that neither of these properties holds for three bosonic dipoles oriented in an external electric field, Efimov physics emerges naturally. For three fermionic dipoles in the same spin substate, on the other hand, there is no Efimov effect, but there is a single universal bound (or quasi-bound) state predicted to occur. Conditions under which these novel 3-dipole states could be observed experimentally will be discussed at the meeting.

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