Abstract Submitted
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Controlling 3-body collisions of ultracold dipolar molecules using an electric field[1] LUCAS LASSABLIÈRE, GOULVEN QUÉMÉNER, Université Paris-Saclay, CNRS, Laboratoire Aimé Cotton — Ultracold dipolar molecules are excellent candidates for engineering quantum applications and cold, controlled chemistry [1]. Therefore, a lot of effort is devoted nowadays to produce ground state ultracold molecules in high densities. One of the main goals is also to produce quantum degenerate gases such as Bose-Einstein condensates or degenerate Fermi gases. Unfortunately, high losses of molecules occur. Therefore, one has to shield them against those losses. In this talk, we will focus on the control of 3-body collisions using an external static electric field, as it was proposed for a shielding of 2-body collisions [2,3]. I will describe the hyperspherical formalism used and I will present preliminary results. The goal is to create a long-range potential barrier at the same value of the electric field than for the 2-body shielding. More investigations will tell us whether the 3-body rate coefficients will be suppressed using this method. [1] J. L. Bohn et al., Science 357, 1002 (2017) [2] G. Wang, G. Quéméner, New J. Phys. 17 035015 (2015) [3] M. González-Martínez et al, Phys. Rev. A 96 032718 (2017)

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