

Abstract Submitted  
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**Ultracold CaF molecules and Rb atoms in the same trap** HANNAH WILLIAMS, LUKE CALDWELL, SARUNAS JURGILAS, NOAH FITCH, JONAS RODEWALD, THOMAS WALL, KYLE JARVIS, BEN SAUER, ED HINDS, MICHAEL TARBUTT, Imperial College London — Several species of ultracold molecules have now been produced. Understanding collisions between ultracold molecules and atoms is an area of great interest. For example, if their properties are favourable, these collisions can be used to sympathetically cool the molecules towards quantum degeneracy. We have built a dual-species magneto-optical trap for CaF molecules and Rb atoms. We will present a study of the collisions between these species, both in the MOT and in a magnetic trap. We will also present our methods for selecting the initial state of the molecular sample and coherently transferring it between different rotational, hyperfine and Zeeman states.

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