

Ultracold trapped SrF molecules - for precision spectroscopy and as a platform for quantum simulation

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We are developing methods to decelerate, cool and trap diatomic molecules using electric, magnetic and optical fields. With the SrF molecule we have selected a molecule that is amenable to Stark deceleration and laser cooling, and is a prima candidate for the study fundamental physics such as parity violation. Besides this, being in a doublet-Sigma ground state, trapped samples of SrF molecules would provide a very interesting platform with controllable interactions, and as such could be used as a 'quantum simulator'. We will present our experimental approach and achievements towards this goal.