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Towards an AC-MOT of CaF LOIC ANDEREGG, EUNMI CHAE, AAKASH RAVI, BENJAMIN AUGENBRAUN, BOERGE HEMMERLING, GARRETT DRAYNA, NICHOLAS HUTZLER, Harvard University and Harvard-MIT Center for Ultracold Atoms, ALEJANDRA COLLOPY, YEWEI WU, SHIQIAN DING, JUN YE, JILA/University of Colorado, WOLFGANG KETTERLE, Massachusetts Institute of Technology and Harvard-MIT Center for Ultracold Atoms, JOHN DOYLE, Harvard University and Harvard-MIT Center for Ultracold Atoms
— Ultra-cold diatomic molecules have rich prospects as candidates to study controlled ultra-cold chemistry, strongly correlated systems and precision measurements. They are also considered as possible qubits in quantum computing and simulation schemes. We report on progress towards loading CaF into a molecular magneto-optical trap (MOT). An AC-MOT will be used to actively remix magnetic dark states via both polarization and magnetic field switching. In order to load a molecular MOT, we have successfully laser slowed a CaF beam to near the expected capture velocity. We describe our AC-MOT apparatus, which is designed to co-trap CaF and Li. We outline our planned study of CaF-Li collisions to explore the feasibility of sympathetically cooling molecules to ultra-cold temperatures.

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