

Abstract Submitted  
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**Experimental Progress in Laser-Cooling Molecules**<sup>1</sup> MICHAEL DI ROSA, ALEXEI TONYUSHKIN, Los Alamos National Laboratory — At Los Alamos National Laboratory, we are studying a particular class of diatomics – the alkaline-earth monohydrides (*e.g.* BeH and CaH) – that have Rydberg transitions similar to the  $^2P_{1/2,3/2} \leftarrow ^2S_{1/2}$  transitions of alkali atoms and appear suited to laser cooling. As a class, the  $A \leftarrow X$  transitions of the alkaline-earth monohydrides possess characteristics that are favorable for Doppler-cooling, including a (nearly) diagonal Franck-Condon array and good spectral isolation of the transitions that form the cooling cycle. We will show how a beam of such molecules can be laser cooled and report the status of our experiments for the particular case of CaH.

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