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Ultracold Polar Molecules

Department of Physics Colloquium

Gases of atoms can be cooled to temperatures close to absolute zero, where intriguing quantum behaviors such as Bose-Einstein condensation and superfluidity emerge. A new direction in experiments is to try to produce an ultracold gas of molecules, rather than atoms. In particular, polar molecules, which have strong dipole-dipole interactions, are interesting for applications ranging from quantum information to modeling condensed matter physics. I will describe experiments that produce and explore an ultracold gas of polar molecules.



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