**David and Edith Harris Physics Colloquium Series**

**Thursday 4/4, 4 PM in-person in 10-250**

**Tanya Zelevinsky**

**Columbia**

**Title**: *Clocks and precision measurements with ultracold molecules*  
**Abstract***:*Much of our physical understanding has developed from increasingly precise atomic spectroscopy.  The level of precision entered a new realm with the advent of laser cooling and trapping.  Now we can extend the ultrahigh spectroscopic precision, or atomic clock technology, to more complex quantum particles such as diatomic molecules.  The ability to quantify molecular degrees of freedom, for example nuclear vibrations, with nearly atomic-clock level precision shines a light on their previously unseen properties.  Furthermore, it suggests possibilities to utilize the high precision for uncovering fundamental aspects of physical interactions, including improved tests of Newtonian gravity at the nanometer scale.

**Host**: Wolfgang Ketterle