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# Physikalisches Kolloquium

July 13, 2021 at 4:15 p.m.  
None

Nick Hutzler  
Caltech, California Institute of Technology, USA

## **Searching for New Fundamental Physics with Polyatomic Molecules**

The fact that the universe is made entirely out of matter, and contains no free anti-matter, has no physical explanation.

The unknown process that created matter in the universe must violate a number of fundamental symmetries, including those that forbid the existence of certain electromagnetic moments of fundamental particles whose signatures are amplified by the large internal fields in polar molecules. We discuss spectroscopic and theoretical investigations into polyatomic molecules that uniquely combine multiple desirable features for precision measurement, such as high polarizability through symmetry-lowering mechanical motions, novel electronic and bonding structures, laser cooling, and exotic nuclei.

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