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Finite-Size Effects & New Physics

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Atomic spectroscopy experiments at the precision frontier allow us to study low-energy nuclear structure, test bound-state QED, refine fundamental constants, and potentially find New Physics. As experimental precision is continuously improved, it is a timely task to re-examine the sensitivity of specific bound states to New Physics scenarios. Depending on their Bohr radii, hydrogen-like systems can be particularly sensitive to distinct New Physics mass ranges. In this talk, we use the example of axion-like particles to illustrate how spectroscopy experiments can be used to probe New Physics.

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