

PRISMA+ Colloquium

Feb. 7, 2018 at 1 p.m.
Lorentz-Raum 05-127, Staudingerweg 7

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On the road towards a nuclear clock - what do we know about the ^{229}Th isomer?

Today's most precise time and frequency measurements are performed with optical atomic clocks. However, it has been proposed that they could potentially be outperformed by a nuclear clock, which employs a nuclear transition instead of an atomic shell transition. There is only one known nuclear state that could serve as a nuclear clock using currently available technology, namely, the isomeric first excited state of ^{229}Th . Since 40 years nuclear physicists have targeted the identification and characterization of the elusive isomeric ground state transition of $^{229\text{m}}\text{Th}$. Evidence for its existence until recently could only be inferred from indirect measurements, suggesting an excitation energy of 7.8(5) eV.