

# Evidence for shape coexistence in $^{120}\text{Sn}$ from the first $0_3^+$ lifetime measurement

Friday, 13 February 2026 21:45 (15 minutes)

The intruder bands in the mid-shell Sn isotopes, built on the proton 2p-2h excitation across the  $Z = 50$  shell gap, are well-known examples of shape coexistence, where more than one shapes appear within the same nucleus. Spectroscopic signatures for shape coexistence include enhanced  $E0$  transitions between the  $0^+$  band heads. However, until now, lifetime information for the  $0^+$  states in  $^{120}\text{Sn}$  has been incomplete. The first measurement of the  $0_3^+$  lifetime in  $^{120}\text{Sn}$  using the fast-timing technique following thermal-neutron capture will be presented in this talk. The first  $\rho^2(E0; 0_3^+ \rightarrow 0_2^+)$  value obtained from this experiment, which is sensitive to the deformation and mixing between the  $0^+$  states, will be discussed.

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**Session Classification:** Nuclear structure

**Track Classification:** Nuclear structure