Contribution ID: **37** Type: **Invited**

Decoherence of collective motion in warm nuclei.

Tuesday, 14 May 2019 09:30 (30 minutes)

Collective states in cold nuclei (yrast region) are represented by a wave function that assigns coherent phases to the participating nucleons. The degree of coherence decreases with excitation energy above the yrast line because of coupling to the increasingly dense background of quasiparticle excitations. The consequences of this damping mechanism will be discussed with a perspective on applications in nuclear astrophysics and technology.
For isoscalar quadruple vibrational multiplets, the rapid decoherence of the low-spin members will be contrasted with the coherent tidal wave motion of the yast members. The rapid decoherence or even absence of the beta vibration will be addressed. The screening of an oblate band in 137Nd from rotational damping by the prolate quasiparticle background will be discussed. The completely incoherent low energy M1 radiation and the scissors mode of warm nuclei will be addressed.

Primary author: Prof. FRAUENDORF, Stefan (University Notre Dame)

Presenter: Prof. FRAUENDORF, Stefan (University Notre Dame)

Session Classification: Session V