

"Pairing Reentrance Phenomenon in Heated Rotating Nuclei in the Shell-Model Monte Carlo Approach"

David J. Dean,

Oak Ridge National Lab, USA, on assignment as:

Senior Advisor, Office of the Under Secretary for Science, U.S. Department of Energy

Rotational motion of heated Ge-72 is studied within the microscopic shell-model Monte Carlo approach. We investigate the angular momentum alignment and nuclear pairing correlations associated with J(π) Cooper pairs as a function of the rotational frequency and temperature. The reentrance of pairing correlations with temperature is predicted at high rotational frequencies. It manifests itself through the anomalous behavior of specific heat and level density.