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Orbital dependent pairing and the structure of the lightest isotopes of tin ROBERT GRZYWACZ, University of Tennessee, IAIN DARBY, IKS Luven, JON BATCHELDER, UNIRIB, Oak Ridge Associated Universities, CARROL BINGHAM, LUCIA CARTEGNI, University of Tennessee, CARL GROSS, ORNL, MORTEN HJORTH-JENSEN, University of Oslo, DAVID JOSS, University of Liverpool, SEAN LIDDICK, NSCL, WITOLD NAZAREWICZ, University of Tennessee, ROBERT PAGE, University of Liverpool, THOMAS PAPENBROCK, University of Tennessee, MUSTAFA RAJABALI, IKS Leuven, JIMMY ROTUREAU, University of Arizona, KRZYSZTOF RYKACZEWSKI, ORNL, STEPHEN PADGETT, University of Tennessee — The island of alpha radioactivity near doubly magic ^{100}Sn provides an opportunity to study properties of tin isotopes using the extreme selectivity of charge particle decay spectroscopy. In an experiment, which used the most advanced experimental spectroscopic techniques the ^{109}Xe$\rightarrow^{105}$Te$\rightarrow^{101}$Sn alpha decay chain was studied at the Holifield Radioactive Ion Beam Facility at Oak Ridge. The majority of the alpha decay branching ratio of the ^{105}Te populates not the ground state but the first excited state in ^{101}Sn leading to the revision of the established order of single particle levels. The in-depth analysis of this result with the state-of-the-art shell model calculations lead to surprising conclusions on the role of the pairing correlations in the lightest tin isotopes.

Robert Grzywacz
University of Tennessee

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