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**Shape coexistence in neutron-rich odd-mass S isotopes** TEA MIJATOVIC, NOBUYUKI KOBAYASHI, HIRO IWASAKI, CHARLES LOELIUS, KENNETH WHITMORE, ROBERT ELDER, ALEXANDRA GADE, DANIEL BAZIN, DIRK WEISSHAAR, PETER BENDER, JOE BELARGE, ERIC LUNDERBERG, BRANDON ELMAN, BRENDEN LONGFELLOW, National Superconducting Cyclotron Laboratory, Michigan State University, USA, ALFRED DEWALD, University of Cologne, Germany, THORYN HAYLETT, University of York, United Kingdom, MICHAEL MATHRY, SEBASTIAN HEIL, TU Darmstadt, Germany — Collective motions in atomic nuclei at low excitation energies have been characterized by the ground-state shape as a single basis. This picture can be altered in exotic nuclei with unusual proton-to-neutron ratios if the nuclear shape can change drastically at low spin. Recently, there has been an increasing interest for shape-coexistence phenomena in neutron-rich S isotopes and studies suggested fairly large collectivity in $^{40,42,44}$S isotopes. We will discuss the search for isomeric or long-lived states in $^{45}$S for which no excited states are known in the literature and the pursuit to fully characterize the band structure of the low-lying states in $^{43,45}$S, which provide key information to establish a comprehensive picture of the shape coexistence in this region. Direct model-independent measurements of the $^{43,45}$S excited states were realized by applying the Recoil Distance Method with the TRIPLEX Plunger in conjunction with GRETINA to fast rare isotope beams at the NSCL.

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