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Spectroscopic studies on ^{39}Ca for classical nova endpoint nucleosynthesis JOHNSON LIANG, ALAN CHEN, ATHANASIOS PSALTIS, McMaster University, CHRISTOPHER WREDE, LIJIE SUN, TAMAS BUDNER, National Superconducting Cyclotron Laboratory, Michigan State University, CATHLEEN FRY, Los Alamos National Laboratory, PRANJAL TIWARI, National Superconducting Cyclotron Laboratory, Michigan State University, MARIUS ANGER, SHAWN BISHOP, THOMAS FAESTERMANN, Technical University Munich, RALF HERTENBERGER, DOMINIK SEILER, HANS-FRIEDRICH WIRTH, Ludwig Maximilians University Munich, RICHARD LONGLAND, CALEB MARSHALL, FEDERICO PORTILLO, JOHN KELLEY, North Carolina State University — In classical nova nucleosythesis repeated proton capture reactions and beta-decays produce proton-rich isotopes and the endpoint of this nucleosynthesis typically occurs in nuclei close to A $\sim$ 40. There is currently a discrepancy between the observed and predicted isotopic abundances in this mass region. One particular reaction, ^{38}K(p,γ)^{39}Ca is important in this regard. Nova simulations show that this reaction can alter the isotopic abundances of ^{38}Ar, ^{39}K, and ^{40}Ca significantly when the reaction rate is varied by its maximum uncertainty. Thus, it is important to constrain uncertainties of this reaction rate to accurately predict isotopic abundances. Although a recent direct measurement has reduced the reaction rate uncertainty, more measurements precisely probing the low energy resonances within the Gamow window would help this effort. To that end, I will present important levels in ^{39}Ca with experiments performed at the Maier Leibnitz Laboratory and TUNL.

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