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Discovery of ^{34g,m}Cl$(p,\gamma)^{35}$Ar resonances CATHLEEN FRY, C. WREDE, MSU/NSCL, S. BISHOP, Technische Universitat Munchen, B.A. BROWN, MSU/NSCL, A.A. CHEN, McMaster University, T. FAESTERMANN, Technische Universitat Munchen, R. HERTENBERGER, Ludwig-Maximilians-Universitat Munchen, A. PARIKH, Unviersitat Politecnica de Catalunya/Institut d'Estudies Especials de Catalunya, D. PEREZ-LOUREIRO, MSU/NSCL, H.-F. WIRTH, Ludwig-Maximilians-Universitat Munchen, A. GARCIA, R. ORTEZ, University of Washington — Sulfur isotopic ratios have potential to aid in the classification of presolar grains. Limited knowledge of the ^{34g,m}Cl$(p,\gamma)^{35}$Ar reaction rates leads to uncertainties in the production of ^{34}S in oxygen-neon classical nova models. To determine these reaction rates, we have indirectly measured ^{34g,m}Cl$(p,\gamma)^{35}$Ar resonance energies up to 800 keV above the ^{35}Ar proton threshold. ^{35}Ar excited states were populated using the ^{36}Ar$(d,t)^{35}$Ar reaction and reaction products were momentum analyzed by a high resolution quadrupole-dipole-dipole-dipole (Q3D) magnetic spectrograph. Seventeen new ^{35}Ar levels have been discovered and uncertainties on previously known levels have been substantially reduced. Experimental level densities were then compared to those calculated using the WBMB Hamiltonian within the $sd-pf$ model space, indicating that most of the expected resonances have been observed.

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