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Breakup of proton-rich nuclei ^{24}Si and ^{23}Al at intermediate energies for reaction rates in explosive H-burning in novae and X-ray bursts A. BANU, L. TRACHE, R.E. TRIBBLE, B. ROEDER, E. SIMMONS, Cyclotron Institute,Texas A&M University, N. ORR ET AL., LPC, Caen, France, M. CHARTIER ET AL., University of Liverpool, UK, R. LEMMON ET AL., CCLRC Daresbury Laboratory, UK, W. CATFORD ET AL., University of Surrey, UK, M. FREER, University of Birmingham, UK, F. CARSTOIU ET AL., IFIN-HH, Bucharest, Romania, M. HOROI, Central Michigan University, A. BONACCORSO, University of Pisa, Italy — We present the use of one-proton-removal reactions of loosely bound nuclei at intermediate energies as an indirect method in nuclear astrophysics, with particular reference to the results of a GANIL experiment with a cocktail beam around ^{23}Al at 50 MeV/nucleon. Momentum distributions of the core fragments, inclusive and in coincidence with gamma rays, from which we determine configuration mixing in the structure of the ground states of the projectile nuclei, were measured. The method has the advantage that it can be used for beams of low quality, such as cocktail beams, and intensities as low as a few pps. These breakup reactions provide information on H-burning reaction rates for ^{22}Mg(p,γ)^{23}Al and ^{23}Al(p,γ)^{24}Si, important in novae and X-ray bursts.

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