Aktivationsmessungen des $^{27}\text{Al}(n,\gamma)_{28}\text{Al}$ und $^{23}\text{Na}(n,\gamma)_{24}\text{Na}$ Cross Sections at $kT=25$ keV — •ETAN UBERSEBER, MICHAEL HEIL, und FRANZ KÄRPELER — Forschungszentrum Karlsruhe, Postfach 3640, 76021 Karlsruhe

New measurements of the $^{27}\text{Al}(n,\gamma)_{28}\text{Al}$ and $^{23}\text{Na}(n,\gamma)_{24}\text{Na}$ cross sections have been done with the Karlsruhe 3.75 MV Van de Graaff accelerator. The activations used the $\text{Li}(p,\alpha)$Be reaction as a neutron source, creating a quasi-stellar neutron spectrum at $kT=25$ keV. While the half life of $^{24}\text{Na}$ allows for the employment of the standard activation technique, the short half life of $^{28}\text{Al}$ necessitated the use of the fast cycle activation method. $^{27}\text{Al}$ and $^{23}\text{Na}$ are considered to be neutron poisons for the $s$-process, thus an accurate determination of their neutron capture cross sections at stellar temperatures is vital for models of nucleosynthesis. Preliminary results yield a lower cross section for both isotopes in comparison to previous time of flight measurements. The uncertainties are expected to be within 6 percent. The astrophysical implications of these new values on the stellar models of nucleosynthesis are discussed.

β-decay properties of r-process nuclei in the $^{132}\text{Sn}$ region — •R. KESSLER1, J. PERERHA2, H. SCHATZ2, M. HELLSTRÖM1, T. FAESTERMANN4, und K.-L. KRATZ2 für die FRS-GSI E040 collaboration — 1Inst. für Kernchemie & HGF-VISTARS, Univ. Mainz, Germany — 2NSCL/MSU & JINA, USA — 3GSI, Germany — 4TU München, Germany

Masses and β-decay properties of extremely neutron-rich nuclei in the region around the doubly-magical $^{132}\text{Sn}$ are important for the understanding and modeling of the r-process, especially with respect to the A≈130 solar-system abundance peak. For this purpose, under E040 two experiments have been performed at FRS and ESR at GSI, using projectile fission of a 750 MeV/u $^{238}\text{U}$ beam impinging on a Pb target. We report here on the measurements of $T_{1/2}$ and $P_{\text{e}}$ values at the FRS with the Munich β-detector system and the Mainz 4π neutron longcounter. Several new isotopes north-east of $^{132}\text{Sn}$ have been identified, among them the r-process “waiting points” $^{136}\text{Sn}$, $^{137}\text{Sn}$ and $^{138}\text{Te}$.