$^{2}H(^{36}S,^{3}He)$ 2020Sa44

2020Sa44: E(^{36}S)=15.3 MeV/nucleon was provided by the Argonne Tandem Linear Accelerator System. Targets were 81, 127, 529−μg/cm^2 deuterated plastic. The reaction was studied in inverse kinematics with the HELical Orbit Spectrometer (HELIOS). The ^{3}He ions spiralled in a 2.85-T magnetic field and were detected by a position-sensitive silicon array. The heavy-ion products were measured with a 65−μm thick silicon detector installed between the target and the silicon array. Measured σ(E(^{3}He),θ). Deduced relative spectroscopic factors for 6 levels from the PTOLEMY-DWBA analysis of the angular distributions. A potential $1/2^+$ neutron 2p2h excitation bandhead in 2.5-3.6 MeV was searched, and an upper limit for the transfer reaction cross section to populate such an intruder configuration was deduced.

^{35}P Levels

2020Sa44 states that the measurement of the beam current was not made with sufficient accuracy to calculate absolute spectroscopic factors. The C^{2}S values are relative spectroscopic factors normalized such that the ground-state value is 2.

E(level)[†]	J$^\pi$[‡]	C^{2}S[#]
0 *1*	$1/2^+$	2.0
2388 *13*	$3/2^+$	0.33 *9*
3860 *2*	$5/2^+$	2.9 *10*
4666 *9*	$5/2^+$	0.71 *34*
5202 *8*	$5/2^+$	1.1 *6*
5706 *38*	$(1/2^-)$	0.23 *5*

[†] From 2020Sa44.
[‡] Assumed by 2020Sa44 for deducing C^{2}S.
[#] Uncertainties are dominated by systematic components.