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**Title:** Large angle scattering of alpha-particles from S-32

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**Abstract:** The elastic scattering of alpha-particles from S-32 was studied in the incident energy range between 4 and 8.9 MeV. In order to ascertain whether quasi-molecular states exist, as predicted in the alpha-S-32 system, excitation functions were measured, and angular distribution measurements were carried out using targets with different thicknesses in the angular range from  $\theta(\text{lab}) = 30$  degrees to 175 degrees at each extreme in the excitation functions. The analysis of the angular distribution data at back angles was performed using the Regge-pole method. A resonance with  $J = 3$  was observed at 7.7 MeV in the alpha-S-32 system. Evidence was also found for both a broad resonance which can be characterized by an angular momentum  $J = 1$ , and for a narrow  $J = 2$  resonance. (C) 1999 Elsevier Science B.V.