

Abstract Submitted
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Study of ^{18}Ne Structure by $^{14}\text{O}+\text{Alpha}$ Elastic Resonance Reaction CHANGBO FU, V.Z. GOLDBERG, G.V. ROGACHEV, G.G. CHUBARIAN, G. TABACARU, M. MCCLESKEY, Y. ZHAI, T. AL-ABDULLAH, L. TRACHE, A. BANU, R.E. TRIBBLE, Cyclotron Institute, Texas A&M University, TEXAS A&M UNIVERSITY TEAM — Data on the α cluster structure in $N\neq Z$ nuclei are very scarce, however a recent work [1] showed unusual features of α cluster states in these nuclei. It was also shown in [1] that a comparison study of mirror α cluster states in $T=1$ nuclei can result in understanding of some details of nuclear structure resulting in α cluster configuration. Besides this, the astrophysical impact of the knowledge of the $^{14}\text{O}+\alpha$ interaction is well known. We report the use of an ^{14}O beam at the Texas A&M University [2], produced by MARS facilities [3], to study resonances in the $^{14}\text{O}+\alpha$ interaction. The $\alpha-^{14}\text{O}$ resonance interaction was studied using the Thick Target Inverse Kinematics (TTIK) method. The time of flight method, providing for the possibility of the identification of low energy particles, was used to identify reaction products. Nine states with large α cluster reduced widths were found in ^{18}Ne in the excitation energy region 8-16 MeV. The alpha structure in ^{18}Ne and in ^{18}O is discussed using results obtained in on $^{14}\text{C}+\alpha$ interaction. References [1] V. Z. Goldberg et al., Phys. Rev. C 69, 024602 (2004). [2] V. Z. Goldberg et al., Phys. Rev. C 69, 031302 (2004) [3] R. E. Tribble et al., Nucl. Phys. **A701**, 278c (2002)

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