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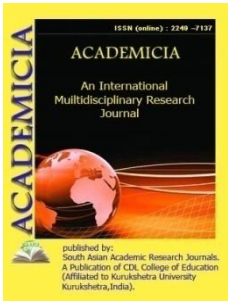

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DETERMINATION OF THE ASTROPHYSICAL *S* FACTOR OF $^{8}B(p,\gamma)^{9}C$ CAPTURE REACTION FROM $^{8}B(d,n)^{9}C$ REACTION

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ABSTRACT

The asymptotic normalization coefficients for $^{9}C \rightarrow {}^{8}B+p$ virtual decay have been determined by measuring the cross-section of $^{8}B(d,n)^{9}C$ reaction in inverse kinematics at 28.8MeV/u using the RIPS facility. The deduced astrophysical S factor S_{18} of $^{8}B(p,\gamma)^{9}C$ capture reaction in the center of mass energy range 1-100keV is $S_{18}=45 \pm 13$eVb.

KEYWORDS: *Transfer Reactions With Radioactive Nuclear Beams, DWBA Analysis, Asymptotic Normalization Coefficients, Astrophysical S Factor.*

REFERENCES

1. S. B. Igamov and R. Yarmukhamedov, *Nucl. Phys. A* 781, 247 (2007)
2. C.A. Gagliardi et al., Phys. Rev. C 59 (1999) 1149.
3. N. Imai et al., Proceedings of the "Nuclei in the Cosmos 2000" Conference, to be published.
4. P. Descouvemont, Nucl. Phys. A 646 (1999) 261.
5. L. D. Blokhintsev, V. I. Kukulin, A. A. Sakharuk, D. A. Savin and E. V. Kuznetsova, *Phys. Rev. C* 48 (1993).
6. T. Motobayashi, in: B.M. Sherrill, D.J. Morrissey, C.N. Davids (Eds.), ENAM 98: Exotic
7. Nuclei and Atomic Masses, AIP Conf. Proc., Vol. 455, AIP, New York, 1998, p. 882;
8. T. Kubo et al., Nucl. Instrum. Methods B 70 (1992) 309. 8. S. B. Igamov, M. C. Nadyrbekov and R. Yarmukhamedov, *Phys. At. Nucl.* 70, 1694. (2007).
9. A.M. Mukhamedzhanov et al., Phys. Rev. C 56 (1997) 1302.

10. R. Yarmukhamedov and Q. I. Tursunmahatov, *The Universe Evolution*: *Astrophysical and Nuclear Aspects*, eds. I. Strakovsky and L. D. Blokhintsev (NOVA Publishers, New York, 2013), pp. 219{270}.

11. W.W. Daehnick, J.D. Childs, Z. Vrcelj, Phys. Rev. C 21 (1980) 2253.

12. C.M. Perey, F.G. Perey, Phys. Rev. 132 (1963) 755.

13. B.A. Watson, P.P. Singh, R.E. Segel, Phys. Rev. 182 (1969) 977.

14. J.H. Dave, C.R. Gould, Phys. Rev. C 28 (1983) 2212.

15. D. Wilmore, P.E. Hodgson, Nucl. Phys. 55 (1964) 673.

16. F.D. Becchetti, G.W. Greenlees, Phys. Rev. 182 (1969) 1190.