Asymptotic normalization coefficients from the ^{15}N(^{3}He, d)^{16}O reaction to determine the ^{15}N(p, γ)^{16}O direct capture S-factor.

V. Burjan[1], P. Bém[1], C. A. Gagliardi[2], Z. Hons[1], V. Kroha[1], M. LaCognata[3], A. M. Mukhamedzhanov[2], J. Novák[1], Š. Piskoř[1], R. G. Pizzone[3], S. Romano[3], C. Spitaleri[3], E. Šimečková[1], L. Trache[2], R. E. Tribble[2] and J. Vincour[1]

[1] *Institute of Nuclear Physics, Czech Academy of Sciences, 250 68 Řež near Prague, Czech Republic*
[2] *Cyclotron Institute, Texas A&M University, College Station, TX 77843*
[3] *Università di Catania and INFN Laboratori Nazionali del Sud, Catania, Italy*

The angular distributions of the ^{15}N(^{3}He, d)^{16}O reaction were measured with the aim to determine the direct capture rate of the astrophysical reaction ^{15}N(p, γ)^{16}O by deduced asymptotic normalization coefficients (ANC). The ^{15}N(p, γ)^{16}O reaction is a part of the CNO cycle having importance in the nucleosynthesis of the N and O isotopes. The measurement was carried out on the cyclotron U120M of NPI CAS at the energy 25.74 MeV of ^{3}He ions in a gas chamber containing the high purity ^{15}N isotope. The preliminary results of corresponding spectroscopic factors and ANCs will be presented together with the estimation of the S-factor for the ^{15}N(p, γ)^{16}O direct capture.