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Coulomb Dissociation of ^{12}N and ^{13}O TOSHIYUKI MINEMURA — T. Minemura[A], T. Motobayashi[A], S. Shimoura[D], H. Murakami[B], Y. Ando[B], Y. Yanagisawa[A], Y. Iwata[B], S. Ozawa[A], S. Takeuchi[A], Y. Higurashi[A], K. Yamada[B], T. Gomi[B], M. Serata[B], H. Kobayashi[B], N. Aoi[A], M. Hirai[C], H. Iwasaki[C], K. Yoshida[A], N. Iwasa[E] M. Kurokawa[D], H. Akiyoshi[A], Zs. Fülöp[A,] H. Sakurai[C], T. Teranishi[D], Z. Liu[A], M. Ishihara[A] [A]RIKEN [B]Department of Physics, Rikkyo University [C]Department of Physics, University of Tokyo [D]Center for Nuclear Study (CNS), University of Tokyo, [E]Department of Physics, Tohoku University —
The Coulomb breakup technique was employed to determine the radiative width of excited levels in ^{12}N and ^{13}O, which dominate the low-energy cross sections of the ^{11}C(p,γ)^{12}N and ^{12}N(p,γ)^{13}O reactions. The ^{12}N and ^{13}O radioactive beams were produced through transfer and fragmentation reactions of aprimary 135 MeV/nucleon ^{16}O beam at RIKEN. For the ^{12}N-dissociation experiment, the radiative width of the 2^- state at $E_{\rm ex}$=1.19 MeV in ^{12}N was extracted to be Γ_γ=29.0$\pm$4.1 meV, the accuracy of which has been much improved compared with earlier studies. For ^{13}O, large E1 strength was found for the first time at around $E_{\rm x}$=2.5 MeV. By the present study, the accuracy of the low-energy photo- capture cross sections for ^{11}C and ^{12}N have been improved, and reaction rates are now calculable based on more reliable experimental informations.

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