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Compact Monoenergetic Proton Generator in MeV Region Using NANOGAN

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For simple applications, such as the calibration of a charged particle detector, a multi-MeV proton generator may be preferable to cyclotrons or electrostatic accelerators such as Van de Graaff generator. Thus, a compact proton generating system, consisting of 10Ghz ECR ion source NANOGAN and a deuteron target, was developed at the Research Center for Nuclear Physics at Osaka University. A $^{3}He^{2+}$ beam was generated by the NANOGAN with the acceleration voltage of 20~40 kV in an experiment that utilized the fusion reaction ^{3}He + deuteron (D) → proton(P) + ^{4}He. The monochromatic protons with energies of 14.67 MeV were successfully obtained at the atmosphere side of the target in the experimental setup, when a novel target base with a thin metal foil and Polyimide film window are used.

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Yes

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