



Contribution ID: 64

Type: Oral presentation

Charge-Changing Cross Section Measurement of Neutron-rich Carbon Isotopes at 50A MeV

Tuesday, 23 June 2015 18:05 (20 minutes)

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\noindent{\underline{The 12th International Conference on Nucleus-Nucleus Collisions, June 21-26, 2015, Catania, Italy}}

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\begin{center}
% insert the title of your abstract here
{\large \bf Charge-Changing Cross Section Measurement of Neutron-rich Carbon Isotopes at 50A MeV}
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\begin{center}
% insert the authors here. The presenter is underlined
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\end{center}

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% write your abstract here

Nuclear matter radii and charge (proton) distribution radii of unstable nuclei have provided important new information on the structure of nuclei far from stability line, and motivated new research direction of nuclear physics. The proton distribution radii for some of the light and stable nuclei have been determined by isotope shift measurements[1,2,3]. However, this method is not applicable to unstable nuclei from B to Ne isotopes due to the uncertainty in atomic physics calculation. The recent progress of Glauber model analysis enable the extraction of the matter distribution radii and proton distribution radii from cross section. Most of the matter radii for p- and p-sd shell nuclei have been determined by interaction- and/or reaction-cross section measurement and Glauber model[4,5]. Using transmission method, we have measured the charge-changing cross section (CCCS) for neutron-rich carbon isotopes using radioisotope beam at $50A MeV$ at RCNP, Osaka University, to determine the proton distribution radii. In this talk, the experiment setup and data analysis: process and results are presented and discussed.

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- [2] R. Sanchez \emph{et al.}, Phys. Rev. Lett. {\bf 96}, 033002 (2006)
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- [5] M. Takechi \emph{et al.}, Phys. Rev. {\bf C79}, 061601 (2009)

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Session Classification: Equation of State of Neutron-Rich Nuclear Matter, Clusters in Nuclei and Nuclear Reactions

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