



Contribution ID: 60

Type: **Poster Presentation**

## **Determination of charge form factors of nuclei by the elastic electron scattering**

*Wednesday, 15 June 2016 16:30 (1h 30m)*

Differential cross sections for elastic electron scattering reflect on charge distribution of nuclei because they are given by products of the Mott cross section and charge form factors. Charge distribution of nuclei is obtained from the Fourier transform of the charge form factors.

We conducted an experiment of electron scattering to study the relations between the cross section and the charge distribution. This experiment was carried out at KURRI-LINAC (Kyoto University) on January 31 and February 7, 2016. An electron beam at 46 MeV was collided with C, Al, Cu and Au targets, and the scattered electrons were detected at 78, 86 and 94 degrees using plastic scintillators.

We determined the charge form factors of the target nuclei by measuring the cross section for the elastic electron scattering. The obtained charge form factors were compared with theoretical form factors calculated under the assumption that each nucleus is a uniformly charged sphere. We also examined the mass dependence of the charge form factors.

We found that momentum transfer dependence of the form factors agrees with the theoretical expectation, and relative amplitude of the charge form factors is also reasonable, however the amplitude is 3 times larger than the theoretical expectation at the maximum. This discrepancy in the amplitude might be due to uncertainty of the beam intensity and backgrounds from inelastic electron scattering. We should improve the experimental setup to solve the discrepancy. It is also necessary to increase the number of the measurement angles for the precise determination of the charge form factor.

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**Session Classification:** Posters