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Measurement of nuclide production cross sections via the 208Pb(p,X) reactions at GeV-energy proton incidence

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Nuclide production cross sections are key information to derive the residual γ-ray dose rate at accelerator facilities. To contribute the research and development of Accelerator-Driven System (ADS), a research program to measure the nuclide production cross sections was launched at Japan Proton Accelerator Research Complex. As of now, we already acquired the nuclide production cross sections by the reactions of GeV-energy proton incidence on various targets, which will be applied to neutron-production target, coolant, accelerator-components, and proton beam window at an ADS facility proposed by Japan Atomic Energy Agency. Here, we selected ^{208}Pb as the target, which is planned to be contained in the neutron-production target and coolant at the ADS facility. By using ^{208}Pb instead of ^{nat}Pb, it is expected to simplify the nuclear reaction mechanism and gain the better understanding of it.

We present the measurement of the nuclide production cross sections via the ^{208}Pb(p,X) reactions at GeV-energy proton incidence. Additionally, the comparison among our present data, nuclear reaction models, and Japanese Evaluated Nuclear Data Library High Energy file 2007 is also presented to confirm the prediction accuracy.

Scientific Topic 1

Scientific Topic 2

Scientific Topic 3

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Induced radioactivity and decommissioning

Scientific Topic 6

Scientific Topic 7

Scientific Topic 8

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