Contribution ID: **89** Type: **not specified**

[P20] Measurement of natIn(g, xn) reaction cross sections with the 63 MeV bremsstrahlung

Thursday, 18 November 2021 16:00 (2h 30m)

Measurement of In-nat(g, xn) reaction cross sections with the 63 MeV bremsstrahlung Ayano Makinaga^1,2,3, Muhammad Zaman^4, Muhammad Shahid^4 Haladhara, Naik^4,5, Man-woo Lee^6, Guinyun Kim^4, Mooh-Hyun Cho^7 1. Department of Radiological Technology, Teikyo Universty, 6-22, Misaki-machi, 836-8505 Omuta, Japan 2. Graduate School of Medicine, Hokkaido University, Kita-15, Nishi-7, Kita-ku, 060-8638 Sapporo, Japan 3. JEIN Institute for Fundamental Science, 5-14, Yoshida-Honmachi, Sakyo-ku, 606-8317 Kyoto, Japan 4. Kyungpook National University, 80 Daehak-ro, Sangyeok-dong, Buk-gu, Daegu, Korea 5. Bhabha Atomic Energy Research Centre, Bhabha Atomic Research Centre, Trombay, Mumbai - 400 085 India 6. Dongnam Institute of Radiological & Medical Sciences, ４０ Jwadong-gil, Jangan-eup, Gijang-gun, Busan, Korea 7. .Pohang University of Science and Technology, 77 Cheongam-ro, Hyogok-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do, Korea Abstract Precise nuclear data information is important to evaluate the production method, cross -sections and impurities in medical radioisotopes [1,2]. In this study, the natIn(g, nx) reaction cross sections were measured with the 63 MeV bremsstrahlung. The experiments were performed at the 100 MeV electron linac facility of the Pohang Accelerator Laboratory (PAL), Korea. Natural indium foils with a thickness of 0.1 mm and weight 0.08 g (isotope composition: In-113 4.3%, In-115 95.7%) were irradiated with the bremsstrahlung end-point energy of 63 MeV for 30 mins. Gold and aluminum foils with the thickness of 0.1 mm were used to evaluate the number of incident photons. The gamma rays emitted from the target after irradiation were measured using an HPGe detector connected to a PC based 4096 channel analyzer. Obtained averaged cross sections for the natIn(g, nx)In-110,111 reactions were compared with the theoretically calculated values based on TALYS 1.6 code. In this talk, we will report the experiment and analysis. This presentation was partly reported in Atomic Energy Society Japan 2018 Spring meeting [3].

References
[1] F. Tarkanyi, et. al., Nucl. Instrum. Methods B 351 (2015) 6-15.
[2] Md. Shakilur Rahman et. al., Nucl. Instrum. Methods B 268 (2010) 13-19.
[3] A. Makinaga et. al., Atomic Energy Society Japan 2018 Spring meeting.

Primary author: Dr MAKINAGA, Ayano (JIFS)

Co-authors: ZAMAN, M.; SHAHID, M.; NAIK, H.; LEE, M.-W; KIM, G.N.; CHO, M.-H.

Presenter: Dr MAKINAGA, Ayano (JIFS)

Session Classification: Poster ポスター