References

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6 - 27 Measurements of Cross Section for Proton Induced Reactions on Natural Nickel up to 100 MeV*

Gong Yiwei[1,2], Luo Peng[1,2], Chen Zhiqiang[1,2], Yan Jinhuang[1,2], Liu Bingyan[1,2], Xu Junkui[1,2], Huang Yuxuan[1], Wen Zhiwen[1], Ran Jianling[1] and Song Shiyu[1]

([1]Institute of Modern Physics, Chinese Academy of Science, Lanzhou 730000, China
[2]School of Nuclear Science and Technology, University of Chinese Academy of Science, Beijing 100049, China)

In this work, several Ni targets were irradiated at the SSC accelerator using protons beam at the energy from 70∼100 MeV, to produce radionuclides: ^{52g}Mn, ^{58}Mn, ^{55}Co and ^{57}Ni. These radionuclides could be used for medical applications[1]. Excitation functions for proton induced reactions at energy up to 100 MeV on natural nickel were analyzed, using the stack foils irradiation methods and high resolution γ-spectrometry. As shown in Fig. 1, new experimental data for nickel at energy of 99.90, 91.51, 81.43, 71.62 MeV are measured. The Ni-nat(p, x)Ni-57 reaction was used as monitor reaction for this work, which was recommended by the International Atomic Energy Agency (IAEA)[2]. Compared with the existing evaluated database from the Experiment Nuclear Reaction Data, the experimental observations in this work are characterized, on average, by a consistent trend. This work could expand the database of Ni-nat(p, x) reactions over energy range from 70 to 100 MeV. In addition, this work would provide experimental information for radiation protection analysis.

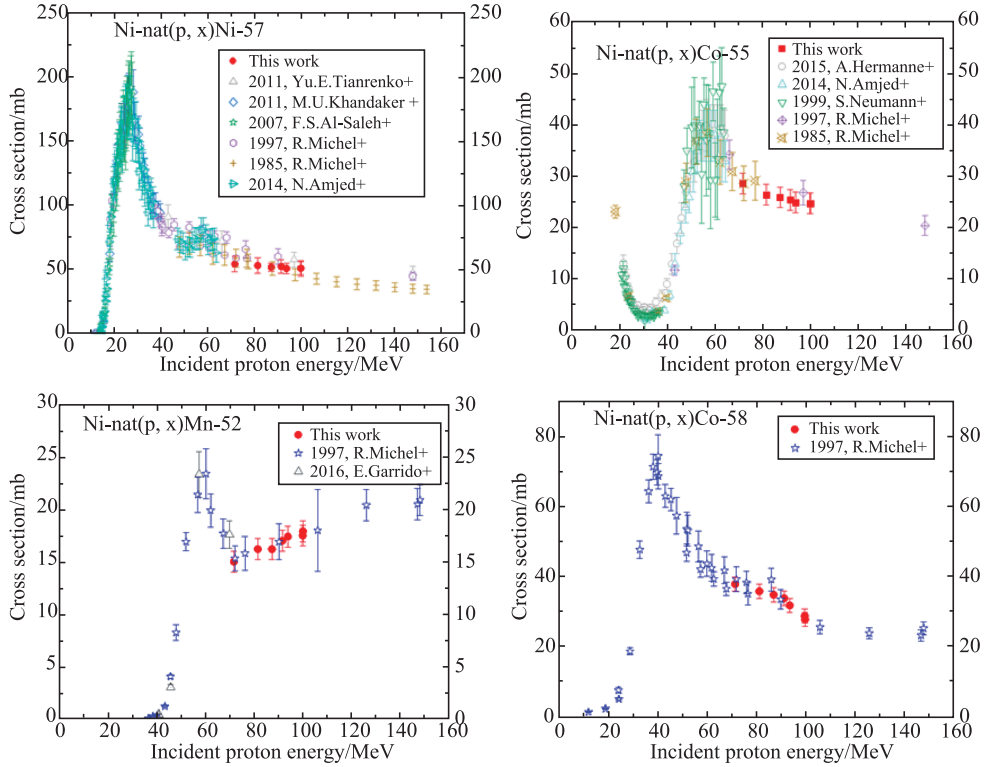

Fig. 1 (color online) The above graphs are the results of protons induced reactions with natural nickel to produce nickel-57, Co-55, Mn-52, Co-58. It can be seen the results are in good agreement with the existing experimental data from the database.

References

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