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Theoretical study of cross sections of proton-induced reactions on Cobalt

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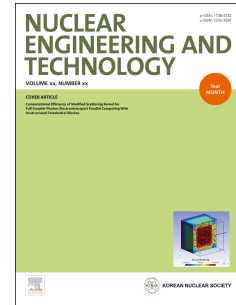
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**Theoretical study of cross sections of proton-induced reactions on Cobalt****Mustafa Yiğit**

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**Abstract**

Nuclear fusion may be among strongest sustainable ways to replace fossil fuels, because it does not contribute to acid rain or global warming. In this context, activated cobalt materials in corrosion products for fusion energy are significant in determination of dose levels during maintenance after a coolant leak at a nuclear fusion reactor. So, cross section studies on cobalt material are very important for fusion reactor design. In this paper, the excitation functions of some nuclear reaction channels induced by proton particles on  $^{59}\text{Co}$  structural material were predicted using different models. The nuclear level densities were calculated using different choices of available level density models in ALICE/ASH code. Finally, the newly calculated cross sections for the investigated nuclear reactions are compared with the experimental values, and TENDL data on based TALYS nuclear code.

**Keywords:** nuclear structural materials, reaction cross section, TENDL database, CobaltCorresponding author: [mustafayigit@aksaray.edu.tr](mailto:mustafayigit@aksaray.edu.tr)

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