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Sensitivity study on the final abundance pattern of the r-process due to fission barrier uncertainties

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The role of nuclear fission in the r-process nucleosynthesis occurring in neutron star mergers is studied. Current theoretical nuclear physics models([1][2][3]) are based on different assumptions on the fission barrier for different fission channels (spontaneous fission, neutron-induced fission, β -delayed fission, etc). In this work, the

nuclear reaction network calculation based on a consistent description for different fission channels is provided. It is shown that the neutron-induced fission channel is the dominant fission channel to influence the final abundance pattern.

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