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FISSION FRAGMENTS DISTRIBUTION AND HEAVY NUCLEI NUCLEOSYNTHESIS.

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The discovery of neutron star merger process and simultaneous observation of heavy elements registered for the first time [1] confirms the theoretical findings that neutron star merger scenario for the close binary is the main site for the r-process passing.
As it was shown for the first time in numerical calculations of the r-process [2], the fission in such a scenario became one of the main reaction channel for the heavy nuclei formation due to involvement of fission products into the r-process as secondary seed nuclei. More than that in such a scenario, leading to the initial conditions with big ratio of free neutrons to seeds, the role of fission products mass distribution became very important for the creation of second peak on the abundance curve. From the other hand the agreement of predicted abundances of second peak heavy nuclei with observations is the test for theoretical models of fission fragment mass distribution.
In the present report the influence of fission fragment mass distribution models and their parameters on the nucleosynthesis results of heavy nuclei in neutron-rich matter of jets, formed as a result of neutron stars merger, are discussed. We considered the fission fragment mass distributions, based on the FFDn [3] and KT-M [4] models, and have researched the dependence of predicted value of chemical elements abundances on the fission fragments mass distribution models used.
It was shown that fission fragments mass distribution models, with parameterization leading to mainly symmetrical fission gives better agreement with abundances observations for the second peak. Besides that the theoretical peak position coincides with observable one only for models, in which fission neutrons were taking into account. And the number of fission neutrons in these models for the neutron rich nuclei should be in times more than in fission of experimentally known nuclei. Under formation of heavy elements in the r-process the contribution of triple fission to the addition to binary one was also evaluated [5,6].

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