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## The Physics of the CGMF Code

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The CGMF code generates binary fission events and follows the decay of the two scission fragments through the evaporation of prompt neutrons and photons. It implements the Hauser-Feshbach theory of nuclear reactions to follow the competition between neutron and photon emission at every stage of the decay and for every excitation energy, spin and parity the fragments are in. It is written in C++, and a comprehensive toolkit has been written in Python to facilitate the analysis of its output files. It is a standalone code, as well as a component of the MCNP-6.3 transport code. In this talk, I will describe the main features, physics models, input parameters, and assumptions that are present in CGMF. I will illustrate its usefulness, accuracy and predictability, or lack thereof, through various fission studies: time evolution of prompt  $\gamma$ -ray emission [2], angular anisotropies in prompt neutron emission [3], inferring the neutron multiplicity distribution from  $\gamma$ -ray studies [4], correlation studies between fission observables [5], corrections on experimental data using simulated neutron emission [6], to name but a few. I will also discuss plans and options for future releases of the code.

### References

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