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tapir: A multi-loop tool for Feynman diagram reduction and manipulation

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The demand for precision predictions in the field of high energy physics has increased tremendously over the recent years. Its importance is visible in the light of current experimental efforts to test the predictive power of the Standard Model of particle physics (SM) to a never before seen accuracy. Thus, advanced computer software is a key technology to enable phenomenological computations for the needed SM predictions.

In this background we present tapir: A tool for identification, manipulation and minimization of Feynman diagrams and their corresponding topologies. It is designed to integrate in FORM-based toolchains which is a common practice in the field. tapir can be used to reduce the complexity of multi-loop problems with cutting-filters, scalar topology mapping, partial fraction decomposition and alike.

Significance

This is the first public announcement of our program.

Our goal is to bring this tool to the attention of the multi-loop community.

References

Speaker time zone

Compatible with Europe

Primary authors: HERREN, Florian (Fermi National Accelerator Laboratory); GERLACH, Marvin (Karlsruhe Institute of Technology)

Presenter: GERLACH, Marvin (Karlsruhe Institute of Technology)

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