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Relativistic Boltzmann solver with GPGPU for astrophysical applications

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We present a new conservative scheme for computation of the Boltzmann collision integral for binary and triple processes in relativistic plasma based on direct integration of exact quantum electrodynamical matrix elements. Parallel evaluation of collision integral is done within the framework of general-purpose computing on graphics processing units (GPGPU). This approach is important for kinetic and emission processes in high energy astrophysical environments.

Summary

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