Implicit Monte Carlo radiative transfer in DRACO[1] GREGORY
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Carlo (IMC) transport module for two- dimensional non-orthogonal mesh, multi-
frequency radiative transfer is presented. This module has been implemented in the
DRACO radiation hydrodynamics laser fusion target simulation code. In the IMC
method a forward plasma temperature is estimated at the beginning of the time step
in the transport equation using the so-called Fleck factor to provide for an implicit
solution for long time steps. A simple equilibrium solution in an infinite medium
is used as an analytical benchmark of this implicit solution. In other dynamic test
cases, analytical macroscopic cross sections are applied to compare with previously
reported one-dimensional results by Fleck and Cummings. Finally, our IMC results
are compared to the flux-limited multi-frequency diffusion model for uniform and
non-uniform meshes in two dimensions.

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