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Classical radiation at one loop

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We study classical radiation fields at next-to-leading order using the methods of scattering amplitudes. The fields of interest to us are sourced when two massive, point-like objects scatter inelastically, and can be computed from one-loop amplitudes. The real and imaginary parts of the amplitudes play important but physically distinct roles in the radiation field. We argue that the imaginary part captures the effects of radiation reaction. This aspect of radiation reaction is directly linked to cuts of one-loop amplitudes which expose Compton trees.

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