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Parametrization of gamma-ray production cross-sections for pp interactions in a broad proton energy range from the kinematic threshold to PeV energies

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Using different Monte Carlo codes such as Geant 4.10, Pythia 8.18, SIBYLL and QGSJET, as well as compiling published data on pp interactions close to the kinematic threshold, we parametrize the energy spectra and production rates of gamma-rays by simple but quite accurate ($\leq 20\%$) analytical expressions in a broad range from the kinematic threshold to PeV energies.

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