The beaming of external Compton emission

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We consider a relativistically moving blob consisting of an isotropic electron distribution that Compton-scatters photons from an external isotropic radiation field. We compute the resulting beaming pattern, i.e. the distribution of the scattered photons, in the blob frame as well as in the observer's frame by using the full Klein-Nishina cross section and the exact incident photon distribution. In the Thomson regime the comparison of our approach with Dermer 1995 results in concurrent characteristics but different absolute number of the scattered photons by a factor of f_corr = 3.09. Additionally, our calculation yields a slightly lower boost factor which varies the more from the corresponding value in Dermer 1995 the higher the spectral index p of the electron distribution gets.

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