

## Channeling 2018



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### On Coherency of Gamma Photons

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We report estimations on production of coherent photons in gamma region by relativistic electrons in periodic structures. Two aspects of coherency were considered: coherency of photons emitted by a single electron over the system, and coherency of the photons emitting by a bunch of electrons at a given position. The first aspect provides density of radiation in proportion to squared number of photons per electron; the second one – proportional to squared number of electrons in a coherent bunch. As is shown, degree of the coherency in both processes decreases with increase of the energy of gammas, due to stochastic process of energy losses. The degree of coherency for both processes is estimated analytically, and thus the overall coherency. Recommendations on increase the limit of coherency are expressed in the report.

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