Physics > Accelerator Physics

Radiative instability of a relativistic electron beam moving in a photonic crystal

V.G. Baryshevsky, A.A. Gurinovich

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The radiative instability of a beam moving in a photonic crystal of finite dimensions is studied. The dispersion equation is obtained. The law $\Gamma\sim \rho ^{1/\left({s + 3} \right)}$ is shown to be valid and caused by the mixing of the electromagnetic field modes in the finite volume due to the periodic disturbance from the photonic crystal.

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