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FEL Gain Formed in Sectional Undulator

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The problem of increasing the efficiency of free electron laser (FEL) during the passage of a relativistic electron bunch through an undulator with intervals is considered. A formula is obtained for the spectral distribution of spontaneous radiation. The dependence of FEL gain on the number of undulator sections is investigated. It is shown that a increase in the efficiency of FEL, when undulator is divided into two parts (an optical klystron), disappears with an increase in the number of undulator sections.

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