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Title

Free Electron Lasers as a High-power Terahertz Sources

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Abstract

Free electron lasers (FEL) are the lasers which utilize the phenomenon of stimulated undulator radiation. Now they are the most powerful sources of electromagnetic radiation with frequency tunable from 1 to 10 THz. Contrary to most lasers, motion of an electron in the FEL may be described by classical mechanics and classical electrodynamics. Therefore they belong to the family of vacuum electronic devices, such as traveling wave tubes or klystrons. The basics of the FEL physics are discussed. General considerations are clarified through some examples. The Novosibirsk THz FEL is described briefly.