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标题: Probing ultrafast optomagnetism by terahertz Cherenkov radiation
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摘要: We put forward Cherenkov-type terahertz emission from a moving pulse of magnetization as a method to explore ultrafast optomagnetic phenomena. We propose to use a structure comprising a slab of transparent magnetooptic material coupled to an output prism. An ultrashort laser pulse propagates in the slab and produces transient magnetization via the inverse Faraday effect. The moving magnetization emits a Cherenkov cone of terahertz waves in the output prism. We developed a theory that predicts the detectability of the radiation for a terbium gallium garnet slab covered with a Si prism.
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