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标题: The absorption property of single crystal LuBiIG garnet film in terahertz band

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摘要: In this paper, a hypothesis has been brought forward that the materials with low propagation loss in both optical and microwave band may exhibit good performance in terahertz (THz) band because THz wave band interspaces those two wave bands. Several kinds of single crystal garnet films were investigated and we found that the Lu2.1Bi0.9Fe5O12 film which grows by liquid phase epitaxy (LPE) from PbO-free flux has the best absorption properties in both microwave and optical band. In THz range, our hypothesis is well confirmed by a THz-TDS measurement which shows that the absorption coefficient of LuBiIG film is 0.05-0.3 cm(-1), and the minimum value appears at 2.24 THz. (C) 2012 American Institute of Physics. [doi:10.1063/1.3676421]

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