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简报

Ce:YIG纳米粉体结构与磁性的研究

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摘要 用共沉淀法制备纳米级的Ce:YIG石榴石粉体颗粒。颗粒尺寸的计算结果表明平均粒径为70nm，这与通过TEM观察到的几乎一致。与氧化物工艺相比，所制备的粉体化学活性高，烧结温度显著降低，由1300℃降低到约900℃。最后对粉体的磁性能与烧结温度的关系进行了讨论。

关键词 YIG石榴石 共沉淀法 相结构 磁性

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Structure and magnetic properties of Ce:YIG garnet nano powders

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Abstract Nano-size $Ce_1Y_2Fe_5O_{12}$ powder particles were prepared by the coprecipitation and heat treatment method.The size of particles calculated by the Scherrer Fomula is about 70nm which is the same as the size measured by transmission electron microscope (TEM). The sinter property was greatly improved, and pure YIG phase was obtained at sintering temperature of 900℃, while the YIG phase creation temperature for ordinary oxide technology is as high as 1300℃. The relation between the magnetic property of particles and sintering temperature was discussed in details.

Key words yttrium iron garnet coprecipitation phase structure magnetic properties

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