The melt growth of Al_2O_3/YAG composite doped with cerium by Horizontal Directed crystalisation using Al_2O_3 seed

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A composite material based on eutectic ceramics Ce:YAG/Al□O□ grown from the melt(MGC) was successfully obtained by the HDC method with dimensions of 220×65×25 mm. In this work, the effect of using a sapphire seed on the inheritance of the texture orientation of the ingot was investigated. A single-phase sapphire seed with the M [10-10] axis was used to orient the ingot texture along the growth direction. SEM and EBSD methods showed that the orientation of sapphire lamellas could be successfully induced with the preservation of orientation throughout the entire volume of the ingot. These results can contribute to improving the properties of eutectic ceramic materials obtained from the melt.

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