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A Composition Design Rule for Crystal Growth of Centimeter Scale by Normal Sintering Process in Modified Potassium Sodium Niobate Ceramics

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Abstract

It has been reported that single crystals could be grown by normal sintering process, without the addition of a seed, in (K,Na)NbO₃ (KNN)-based ceramics. The growth of huge grains (approximately 5-30 mm) is due to the donor effect on abnormal grain growth (AGG) in KNN-based ceramics. In this study, a composition design rule is suggested to obtain the large single crystal without the seed addition in KNN-based ceramics. In addition, it is also identified by the microstructure observation that the huge grains can be due to the donor effect on the abnormal grain growth which is found in perovskite

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