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Growth and growth rate analysis of potassium succinate crystal

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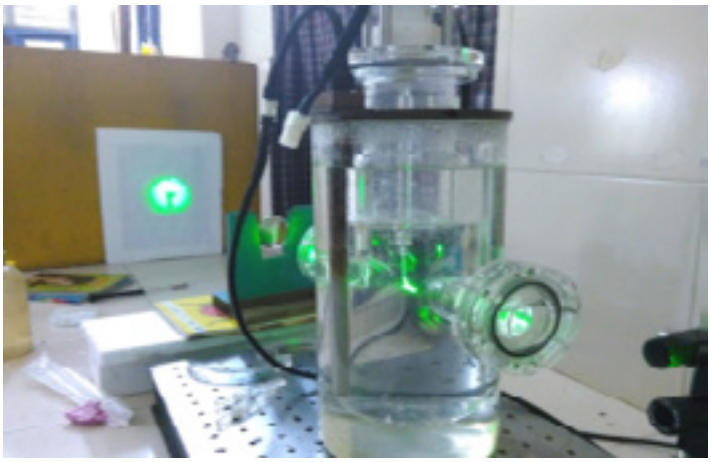
Single crystals of potassium succinate-succinic acid were grown by slow-cooling method. The growth of the crystal is recorded using shadowgraph and the growth rate is evaluated using image processing. The growth rate analysis showed that slow cooling rate enhances the quality of crystal obtained. Also the *in situ* image analysis of the crystal gives a better method for controlling the growth parameters of the crystal. Semi organic non-linear optical materials play an important role in many fields of science such as information storage systems, data processing systems, information technology, telecommunication, utility equipment development, etc. Their properties like high melting point, dielectric and mechanical stability, second harmonic generation, etc. made them suitable for many applications. Semi organic non-linear materials are developed to overcome the shortcomings of organic non-linear materials such as low transparency and short optical band gap. Semi organic materials formed with ionic salts offer wide range of frequencies. Also it is much easier to grow semi organic materials. This paper presents the design and realization of a crystallizer and its use to synthesize from aqueous solution, structure, crystal growth and growth rate analysis of Potassium Succinate (KS) crystal which belongs to monoclinic system. Even though the evaporation techniques were used for the growth of KS, the slow cooling solution growth of KS is not much tried so far. This method provides comparatively easier and faster method to grow crystals. The solution growth of KS is not much represented in the literature. A crystallizer for slow cooling solution growth is designed and realized and a single crystal of potassium succinate is grown using slow cooling solution growth technique. The growth rate analysis is done by shadowgraph image analysis. The image analysis showed the growth rate of different faces of the crystal.



Biography

Vijeesh P is currently an Assistant Professor in the Department of Physics, The Cochin College and Research Scholar in Cochin University of Science and Technology. His major research area is crystallography.

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