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Title:Investigation on the growth of DAST crystals of large surface area for THz applications

Authors:Vijay, R. Jerald (1); Melikechi, N. (2); Thomas, Tina (1); Gunaseelan, R. (1); Arockiaraj, M. Antony (1); Sagayaraj, P. (1)

Author affiliation:(1) Department of Physics, Loyola College, Chennai, India; (2) Department of Physics and Pre-Engineering, Centre for Research and Education in Optical Sciences and Applications, Delaware State University, Dover, DE 19901, United States

Corresponding author:Sagayaraj, P.(psagayaraj@hotmail.com)

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Abstract:The growth of high quality 4-N,N-dimethylamino-4-N-methyl- stilbazoliumtosylate (DAST) crystal with large surface area is reported by adopting the slope nucleation coupled slow evaporation method (SNMSE). The structure and composition of the crystal are studied by single crystal X-ray diffraction and CHN analyses. The linear optical properties are investigated by UV-vis absorption. The melting point and thermal behavior of DAST are investigated using differential scanning calorimetric (DSC) and thermogravimetric analyses (TGA). The Vickers microhardness number (VHN) and work hardening coefficient of the grown crystal have been determined. The surface features of the DAST crystal are analyzed by scanning electron microscopy (SEM) and it confirmed the presence of narrow line defects (NLDs) in the sample. &copy; 2011 Elsevier B.V. All rights reserved.

Number of references:30

Main heading:Surface defects

Controlled terms:Crystal growth - Microhardness - Optical properties - Scanning electron microscopy - Strain hardening - Thermodynamic stability - Thermogravimetric analysis - X ray diffraction

Uncontrolled terms:CHN analysis - DAST crystal - Grown crystals - High quality - Large surface area - Linear optical properties - Narrow lines - Single crystal x-ray diffraction - Slow evaporation method - Surface feature - Thermal behaviors - UV-vis absorptions - Vickers microhardness - Work hardening coefficient

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