Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

In Situ **Investigation of a Pre-ordered Boundary Layer during LiB $_3$O$_5$ crystal Growth from MoO$_3$ Fluxes: Molecular Understanding of Crystallization**[1] DI WANG, Nanjing University, DEMING ZHANG, Anhui Institute of Optics and Fine Mechanics, YINCHAO YUE, SHANSHAN LIU, ZHANGGUI HU, Key Lab of Functional Crystals and Laser Technology of Chinese Academy of Sciences, MU WANG, Nanjing University, GUOCHUN ZHANG, Key Lab of Functional Crystals and Laser Technology of Chinese Academy of Sciences, SHAOTANG YIN, Anhui Institute of Optics and Fine Mechanics, ANHUI INSTITUTE OF OPTICS AND FINE MECHANICS TEAM, KEY LAB OF FUNCTIONAL CRYSTALS AND LASER TECHNOLOGY OF CHINESE ACADEMY OF SCIENCES COLLABORATION, NANJING UNIVERSITY COLLABORATION — Confocued Raman spectroscopy has been used to *in situ* investigate the crystal-solution interfaces around an as-growing LiB_3O_5 crystal from MoO_3 fluxes. The spectroscopic data reveals the LiB_3O_5 crystal growth occurs in a pre-ordered boundary layer, wherein the formation and desolvation of well-ordered lattice-like growth units through a cation-transfer reaction between the solvent and solute. The obtained structural information proves the packing configuration of the solution near the crystal-solution interface is reduced with respect to the bulk one, moreover, suggests a growth mechanism of iB_3O_5 crystal from MoO_3 fluxes at the molecular level As it displays a key role for the crystal growth, the pre-ordered boundary layer can provide new insights into the nature of various growth phenomena such as face-induced well-ordered cluster formation, grown defect formation, solute-solvent interaction and so on.

[1]Acknowledges the support from National Natural Science Foundation of China (Grant No. 51302268)

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Date submitted: 07 Nov 2013 Electronic form version 1.4