Abstract Submitted
for the OSS18 Meeting of
The American Physical Society

Single CaO accelerated densification and microstructure control of highly transparent YAG ceramic[1] TIANYUAN ZHOU, SAHIL AGARWAL, POONEH SAADATKIA, FARIDA SELIM, Bowling Green State University, Bowling Green Ohio, USA, LE ZHANG, HAO CHEN, Jiangsu Normal University, Xuzhou, Jiangsu, China, BOWLING GREEN STATE UNVIERSITY COLLABORATION, JIANGSU NORMAL UNIVERSITY COLLABORATION — In this work, CaO single dopant was adopted to realize the densification and microstructure control of fine- grained YAG ceramic by a solid state reaction method and highly transparent YAG ceramics were obtained after vacuum sintering at 1820 °C. The average grain size was only 2.7 μm, when the amount of CaO used was 0.045 wt.%. It was found that the CaO dopant promoted densification of YAG ceramics when the sintering temperature was lower than 1660 °C, however it dramatically inhibited grain growth when the sintering temperature was further increased.

[1]The authors acknowledge the generous financial support from Priority Academic Program Development of Jiangsu Higher Education Institutions (PAPD)

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Date submitted: 02 Mar 2018 Electronic form version 1.4