

RAPID GROWTH AND OPTICAL PROPERTIES OF ADP CRYSTAL

X. Sun^{1,2}, Z.P. Wang^{1,2}, Y.Q. Liu¹, X.G. Xu^{1,2}

¹State Key Laboratory of Crystal Materials and Institute of Crystal Materials, Shandong University, Jinan 250100, Shandong, China

²Key Laboratory of Function Crystal Materials and Device (Shandong University), Ministry of Education, Jinan 250100, Shandong, China
sunxun@sdu.edu.cn

By using the point-seed rapid growth method, we obtained ADP crystal with sizes of $112 * 115 * 145 \text{ mm}^3$. The linear and non-linear optical (NLO) properties of ADP crystal were investigated intensively, including transmission spectrum, refractive index, Raman gain, laser damage threshold, and NLO coefficients. Efficient third harmonic generation (THG) and fourth harmonic generation (FHG) were realized, with conversion efficiency of 59%, 64%, respectively. Considering the availability of super large sizes and excellent comprehensive qualities, ADP might be used as the frequency conversion components in Inertial Confinement Nuclear Fusion (ICF) equipments, as a powerful substitute for KDP type crystals.