

## Supplement Information

### Growth of large-aperture mid-infrared nonlinear optical $\text{La}_3\text{Nb}_{0.5}\text{Ga}_{5.5}\text{O}_{14}$ crystal for optical parametric chirped-pulse amplification

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SI Table 1 Thermophysical properties used in the simulation

Physical properties	Value
Density of the crystal (g/cm <sup>3</sup> )	5.88
Emissivity of the crystal	0.3
Specific heat of the crystal (J/g·k)	600
Thermal conductivity of the crystal (W/m·k)	1.7
Density of the melt (g/cm <sup>3</sup> )	5.5
Specific heat of the melt (J/g·k)	800
Thermal conductivity of the melt (W/m·k)	1.5
Thermal conductivity of the Ir crucible (W/m·k)	147
Emissivity of the Ir crucible	0.8
Electricity conductivity of the Ir crucible (S/m)	2×10 <sup>7</sup>
Specific heat of the Ir crucible (J/g·k)	130
Thermal conductivity of ZrO <sub>2</sub> brick (W/m·k)	3
Emissivity of ZrO <sub>2</sub>	0.6
Thermal conductivity of Al <sub>2</sub> O <sub>3</sub> plate (W/m·k)	2.5
Emissivity of Al <sub>2</sub> O <sub>3</sub>	0.7

SI Table 2 Geometric structure of different temperature fields (The thickness of heat insulators)

	(a)	(b)	(c)
ZrO <sub>2</sub> brick/mm	20	25	30
ZrO <sub>2</sub> fiber blanket/mm	20	30	40
ZrO <sub>2</sub> plate/mm	10	15	25
Al <sub>2</sub> O <sub>3</sub> plate/mm	10	15	25