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Suppression of spatial hole-burning in a standing wave solid-state laser with a degenerate resonator PO-TSE TAI, Department of Photonics and Institute of Electro-Optical Engineering, National Chiao Tung University, 1001 Tahsueh Rd., Hsinchu, Taiwan 30050, HSIAO-HUA WU, Department of physics, Tunghai University 181 Sec. 3 Chung Kang Rd. Taichung 407, Taiwan, WEN-FENG HSIEH, Department of Photonics and Institute of Electro-Optical Engineering, National Chiao Tung University, 1001 Tahsueh Rd., Hsinchu, Taiwan 30050 — We numerically and experimentally demonstrated that the spatial hole burning in a solid-state laser with a standing wave resonator can be suppressed in use of a tightly-focused pumping beam. The laser can self- adjust its mode waist to match the small pump volume when it is operated in a degenerate cavity configuration, so that variation of the gain profile along the laser crystal can be minimized via the gain saturation.

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