

Numerical simulation of gas discharge CO₂ lasers with conic tubes

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Abstract

The results of numerical simulation for fast-axial-flow gas discharge CO₂ lasers are presented. Quasi-one-dimensional consideration of the processes for powerful CO₂ lasers with conic discharge tubes shows that laser operation may be more effective in the case of tubes which are narrowed down from anode to cathode provided that gas flow is directed towards the cathode. On the contrary, when tube is narrowed down from cathode to anode, no any advantage in the laser operation may be received. The calculated quantities are in satisfactory agreement with the available experimental data.

<http://dx.doi.org/10.1117/12.660157>

Keywords

CO₂ laser, Conic tube, Discharge chamber (DC), Output power