



Iranian Journal of Physics Research, Vol. 10, No. 3, 2010

Research note

Optimization of gas flow velocity for maximum output of a fast-axial-flow CW CO₂ laser using genetic algorithms

A M Koushki and S Jelvani

Laser and Optics Research School, Nuclear Science and Technology Research Institute, Atomic Energy Organization of Iran, AEOL,
P.O.Box:11365-8486 Tehran-Iran
E-mail: akoushki@aeoi.org.ir

(Received 23 July 2008 ; in final form 2 May 2010)

Abstract

To obtain the maximum output power of a fast-axial-flow CW-CO₂ laser, gas flow velocity can be optimized by using genetic algorithms. Our theoretical approach shows that the gas flow velocity after optimization increases the laser output power substantially from 500W, obtained in our present system, to 2203W.

Keywords: genetic algorithms, fast-axial-flow CW-CO₂ laser, gas-flow velocity, optimization

For the full article refer to the Persian section