

SAIP 2011



Contribution ID : 383

Dielectric barrier discharge CO₂ TEA laser operated at frequencies up to 400 Hz

Wednesday 13 Jul 2011 at 11:00 (00h15')

Content :

A dielectric barrier discharge CO₂ TEA laser excited by a thyatron driven power supply has been developed and characterized. Laser output was observed at frequencies up to 25 Hz for an electrode separation of 10 mm with 1.8 mm Suprasil glass covering the electrodes. At this gap separation, pulsed power output of about 9 W was detected for gas pressures between 100 and 400 mbar. Changing the electrode gap separation to 5 mm and using 1.4 mm Suprasil glass dielectric increased the output power to 23 W and enabled laser output to be observed at gas pressures up to 700 mbar and maximum pulse excitation frequencies of up to 400 Hz. The developed laser does not require water cooling since the system operates in burst pulse mode.

Level (Hons, MSc, PhD, other)? :

PhD

Consider for a student award (Yes / No)? :

No

Short Paper :

Yes

Primary authors : Mr. BARICHOLO, Peter (National University of Science and Technology, Stellenbosch University)

Co-authors : Mr. STEHMANN, Timo (University of Stellenbosch) ; Dr. HLATYWAYO, Dumisani John (National University of Science and Technology, Bulawayo, Zimbabwe) ; Prof. ROHWER, Erich (Laser Research institute, University of Stellenbosch) ; Prof. COLLIER, Mike (National University of Science and Technology) ; Prof. BERGMANN, Hubertus M. (Laser Research institute, University of Stellenbosch)

Presenter : Mr. BARICHOLO, Peter (National University of Science and Technology, Stellenbosch University)

Session classification : LOS

Track classification : Track C - Lasers, Optics and Spectroscopy

Type : Oral Presentation