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

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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

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

Yes

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

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

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

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