

# **Influence of Nitrogen Oxides on Singlet Delta Oxygen Production in Pulsed Electric Discharge for Oxygen-Iodine Laser**

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Experimental and theoretical study of influence of nitrogen oxides NO and NO<sub>2</sub> admixtures in oxygen containing gas mixture excited by pulsed electron-beam sustained discharge on input energy and time behavior of singlet delta oxygen (SDO) luminescence was carried out. Temperature dependence of the constant of SDO relaxation by unexcited molecular oxygen was estimated.

Experimental and theoretical study of influence of nitrogen oxides NO and NO<sub>2</sub> admixtures in oxygen containing gas mixture excited by pulsed electron-beam sustained discharge on specific input energy and time behavior of singlet delta oxygen (SDO) luminescence was carried out. NO addition was theoretically demonstrated to result in a little specific input energy increase, whereas NO<sub>2</sub> addition results in its decrease. Temperature dependence of the constant of SDO relaxation by unexcited molecular oxygen was estimated by experimental data processing. A small amount of nitrogen oxides (~0.2%) was shown by numerical calculations to result in total removal of atomic oxygen that being a strong SDO quencher is produced due to dissociation of molecular oxygen in electric discharge.

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