

## Kinetic mechanisms in CO<sub>2</sub>-N<sub>2</sub> plasmas

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**Abstract** (about 150 words with free format)

This contribution reports the comparison of simulation results from a 0D self-consistent kinetic model with recent experimental data obtained in low-pressure DC discharges in CO<sub>2</sub>-N<sub>2</sub>. This work will thus contribute to further develop the existing models [1-3] and will allow us to investigate the impact of N<sub>2</sub> on the plasma kinetics, relevant, since the admixture of N<sub>2</sub> is beneficial for CO<sub>2</sub> decomposition [1,4].

The system of election is a DC glow discharge, operating at a few Torr and tens of mA in a Pyrex tube of radius 1 cm. The set of measurements provides the gas temperature, vibrational temperatures of CO and the various modes of CO<sub>2</sub>, reduced field E/N, and densities of O(<sup>3</sup>P), CO(X<sup>1</sup>Σ<sup>+</sup>) and CO<sub>2</sub>(X<sup>1</sup>Σ<sup>+</sup><sub>g</sub>). The simulations are carried out with the LoKI simulation tool [5]. The reasons underlying the positive effect of N<sub>2</sub> in CO<sub>2</sub> dissociation will be discussed at the conference.

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