

## Non equilibrium vibrational and electron energy distribution functions in CO<sub>2</sub>/CO cold plasma

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In recent papers [1-2], we have shown results obtained by implementing a self-consistent time-dependent kinetic model of a pure CO plasma applied to conditions generally met in microwave, dielectric barrier and nanosecond repetitively pulsed discharges. The model is based on the coupling between the Boltzmann equation for the electron energy distribution function (eedf), the CO vibrational and electronic excited state kinetics and a simplified global model for dissociation and ionization plasma chemistry. The results reported in [1-2] have shown the importance of the model to understand the energy exchange processes between the different vibrational and electronic modes of the plasma molecules and the free electrons. In the present contribution, we will show results obtained by inserting the CO kinetic model into the more complex model which describes the kinetics of a reacting CO<sub>2</sub>/CO plasma mixture [3-8], focusing on the problem of CO<sub>2</sub> activation by means of plasma technology. Attention will be made in the description of the most important processes linking the CO and CO<sub>2</sub> kinetics and to the contribution of the CO and CO<sub>2</sub> electronic excited state kinetics in affecting the time-dependent eedf of the reacting mixture.

### References

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