

Abstract Submitted
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Key insights into the reacting kinetics of atmospheric pressure plasmas using He+N₂/O₂/CO₂/H₂O/Air mixtures¹ TOMOYUKI MURAKAMI, Seikei University — A zero dimensional kinetic chemistry computational modeling to identify the important collisional mechanisms and the dominant species in atmospheric pressure plasmas has been developed [1]. This modeling provides an enhanced capability to tailor wide variety of reactive intermediates/species in atmospheric pressure plasmas using He+N₂/O₂/CO₂/H₂O/Air mixtures. The influence of the gas constituent, the gas temperature and the excitation frequency (kHz-, RF-, Pulsed-working) on the complex reacting chemical kinetics is clarified. This work also focuses on the benchmarking between the predictive outputs of this computer-based simulations and the diverse experimental diagnostics with particular emphasis on reactive oxygen/nitrogen intermediates/species.

[1] T. Murakami et al Plasma Sources Sci. Technol. 22(2013)015003 / 22(2013)015003 / 23(2014)025005.

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