

Abstract Submitted  
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**Chemical kinetics study of a nanosecond pulsed He-O<sub>2</sub> plasma**

**Jet** SHENGGUO XIA, CHUNQI JIANG, University of Southern California, Los Angeles, CA, USA, 90089 — Atmospheric-pressure, nanosecond pulsed plasma jets have shown promising applications in biomedical and dental fields. In order to better understand the mechanisms associated to the plasma processes, a zero-dimensional plasma chemistry model was used to study the chemical kinetics of an atmospheric-pressure, nanosecond pulsed He-O<sub>2</sub> plasma jet. Density kinetics of the charged and neutral species in the plasma jet as a function of the input parameters including the oxygen concentration and the electric field are calculated. The roles played by different reactions in the kinetics schemes are assessed. In addition, both of He-O<sub>2</sub> and He-O<sub>2</sub>-N<sub>2</sub> plasma chemical kinetics reaction schemes are discussed to examine the effects of air entrainment on the characteristics of the plasma jet.

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