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Research on OH(A) Production Mechanism of an Atmospheric He-Water Plasma Jet JINGJING LIU, XIAO HU, Dept of Mechanical and Electrical Engineering, Guangzhou University — Hydroxyl radicals produced by atmospheric liquid containing plasmas play important role on bacteria killing and wound healing. A He-H₂O plasma jet can produce abundant OH radicals with low gas temperature. At present, some possible reactions to produce OH(A) are concluded, however, the main mechanism to produce OH(A) and the influence of plasma working mode and water vapor concentration on OH(A) generation are still not clear. It is generally regarded that the accurate measurements of electron density and electron temperature play key role on the analysis of OH production mechanism. In this paper, the main generation and loss mechanisms of OH(A) will be found out by both experimental measurements of time-spatial distribution of OH(A) emission intensity, electron density and electron temperature and neutral gas/plasma fluid simulation at different working modes and water vapor concentrations. The influence of plasma working mode and water vapor concentration on OH(A) production and its flux arriving on the substrate is also investigated to optimize the He-H₂O plasma jet for bio-medical application.

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