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3P56 - Variation of Physical Parameters in Plasma Wound Healing

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The plasma healing of acute wound is examined by controlling several external physical parameters such as driving frequency and power, duration and interval of plasma treatment, fraction of air mixture, and gap distance between plasma and wound. The variation of these physical parameters results in different amount of Reactive Oxygen and Nitrogen Species (RONS) reaching the wound, which stimulate the process of wound healing inside tissue on the physiological time scale as revealed by several important bio indicators. While focusing on the wound size and its rate of change as important physical indicators, which well correlate with the observation of optical emission spectra, the most promising results were obtained by Dual-frequency Microwave Plasma (DP) [1] with 2% air mixture to argon, showing much improved speed of wound healing compared with the previous experiments.

[1] Lee J, Nam W J, Lee S T, Lee J K and Yun G S 2018 Sheath and bulk expansion induced by RF field in atmospheric pressure microwave plasma Plasma Sources Sci. Technol. 27 075008

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