Abstract Submitted
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Ion and atomic species produced in large scale oxygen plasma used for treatments sensitive materials[1] KOSTA SPASIC, NIKOLA SKORO, NEVENA PUAC, GORDANA MALOVIC, ZORAN LJ. PETROVIC, Institute of Physics, University of Belgrade, Pregrevica 118, 11080 Belgrade, Serbia — Asymmetric CCP plasma system operating at 13.56 MHz was successfully used for treatments of textile, seeds and polymers. Central electrode (aluminium rod) was powered electrode while the cylindrical wall of the chamber was grounded electrode. We have used mass spectrometry for detections of ions and neutrals in order to get better insight in plasma chemistry involved in surface reactions on treated samples. Besides of ions, one of the important species for surface modifications is atomic oxygen. Actinometry was used as an additional diagnostic tool to determine the extent of atomic oxygen produced in plasma. Measurements were made in several different mixtures of oxygen with addition of several percent of argon. The range of pressures investigated was 150 to 450 mTorr for powers from 100 to 500 W. Measured atomic oxygen density has a steady rise with power (10^{19}-10^{20} m^{-3}). Apart from atomic oxygen species we have detected mass spectra of positive and negative ions. Most abundant ion was O_2^+ while the amounts of O^+ and O^- were smaller by the order of magnitude compared to O_2^+.

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