Abstract Submitted
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Optical emission spectroscopy of OH lines in N_2 and Ar plasma during the treatments of cotton fabric[1] NIKOLA SKORO, NEVENA PUAC, KOSTA SPASIC, GORDANA MALOVIC, Institute of Physics, University of Belgrade, Pregrevica 118, 11080 Belgrade, Serbia, MARIJA GORJANC, Department of Textiles, Faculty of Natural Sciences and Engineering, University of Ljubljana, Askerceva 12, 1000 Ljubljana, Slovenia, ZORAN LJ PETROVIC, Serbian Academy of Sciences and Arts, Knez Mihailova 35, 11000 Belgrade, Serbia — Low pressure non-equilibrium plasmas are proven to be irreplaceable tool in material processing. Among other fields their applications in treatments of textiles are still diversifying, but the main role of plasma is activation of the surface of treated sample. After, or during, the treatments these surfaces can be covered with different materials or species (such as microcapsules) that enhance properties of the fabric. In order to investigate mechanisms how active species from plasma interact with the cotton surface, we studied both plasma and surface properties. Bleached cotton samples were treated in low-pressure nitrogen and argon plasma in a chamber with parallel-plate electrodes. The effect of the plasma treatment on the cotton samples was investigated with the colorimetric measurements on dyes absorption by a spectrophotometer. Optical emission spectroscopy was performed by using spectrometer with a sensitive CCD camera. We have recorded the evolution of the maximum of the intensity of OH and N_2 second positive band lines. Measurement were done with and without samples in the chamber and comparison between the lines intensity was made. The parameters for optimal plasma treatment conditions were determined.

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