

**[S-10]**

**13.56 MHz discharge at atmospheric pressure & its possibilities for surface modification of material.**

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During last years the tendency became evident to develop and utilize discharge at atmospheric pressure for surface modification of materials. The review of the literature [1] devoted to this subjects, on the one hand specifies wide opportunities of materials surface modification as a result of processing in the atmospheric discharges, and on the other hand demonstrates absence of detailed understanding of mechanisms of physical processes in atmospheric discharge as well as mechanisms of its influence on a processable surface. The present paper represents the first results obtained in the field of systematic study of atmospheric discharge parameters together with research of discharge influence on a processable surface.

In order to study discharge properties time dependencies of applied voltage and discharge current, discharge radiation spectra, spatial radiation distribution, ozone and NOx generation rates were measured in dependence on discharge gap length, RF power and air flow rate. Samples of different materials preliminary cleaned by ethyl alcohol were mounted on the plastic layer positioned on the grounded plane, then after ignition of the discharge samples were treated by plasma during their multiple scanning in respect to the wire. After treatment the wettability of the samples was tested on the basis of contact angle measurements. In order to test adhesion the treated samples were cut to several pieces and the pieces were mounted on the cylinders 2cm in diameter. Then the parts of samples being on the end surface of cylinders were covered by glue and jointed in pairs. After 24 hours the cylinders were mounted in the device for the

tensile test and the force necessary for disassembling of the samples was measured.

[References]

- [1]. Proceedings of HAKONE YII Conference.Greifswald, 2000.