**method of increasing the spatial resolution of the surface charge distribution in dbd**

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Measurement of the surface charge distribution on the dielectric plays an important role in the study of surface discharges. All the non-intrusive measurement techniques are usually implied as a compromise between the spatial resolution and the influence of the measurements on the discharge process. At the increase of the dielectric thickness the spatial resolution is significantly reduced.

In this paper, the method of increasing the spatial resolution for the case of a thick dielectric (d ≥ s–0.5) was developed. The distribution of the surface charge is obtained from the known distribution of the potential on the opposite side of the dielectric. The solution of the inverse electrostatic problem is obtained by deconvolution of the measured data with the point spread function. The latter is formulated as a potential distribution generated by a point charge. Several tests of the algorithm on known systems (i.e. corner of the electrode) were performed.

Using the method of capacitive probes surface distribution of the charge amplitude generated by a single microdischarge in the surface DBD was obtained. Data were obtained for 1 and 2-mm-thick dielectric. Comparison of the directly measured distribution with the discharge structure was made. For 1 mm thick dielectric measured distribution corresponds to the distribution of luminosity of the discharge. In the case of 2 mm measured distribution is much wider than the visible area covered by discharge; after the deconvolution procedure charged area size coincides with the discharge image.