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Abstract for an Invited Paper
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Breakdown in rf and dc fields¹

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In this presentation new developments in measurements of the breakdown in radiofrequency fields will be presented together with results of Monte Carlo simulations that reveal physical causes for the features of breakdown curves, scaling and the importance of surface processes and of attachment of electrons will be examined. It has been found that in the two valued branch of the breakdown curve in one end electrons never reach region close to electrodes while for the higher voltages they dominantly collide with electrodes where they may disappear or be reflected. The nature of the dominant ionization is different in two branches. A new technique for the detection of the rf breakdown at low pressures, based on a balanced capacitive bridge will also be presented. The technique eliminates common problems in rf breakdown measurements and enables a precise time-domain tracking of the breakdown process. The presentation will be completed by the results of studies of dc breakdown and high E/N transport in alcohol vapors and in water vapor. Work done in collaboration with: Marija Puač, Antonije orević, Jelena Marjanović, Gordana Malović and Zoran Lj. Petrović

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