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Modeling of Electron Field Emission Properties of Carbon Nanotubes¹ MARIJA RADMILOVIC-RADJENOVIC, BRANISLAV RADJENOVIC, Institute of Physics, Belgrade-Serbia — The strength and flexibility of carbon nanotubes (CNTs) make them of potential use in controlling other nanoscale structures, which suggests they will have an important role in nanotechnology engineering. One of the most promising future applications is employing carbon nanotubes in electron field emission devices. Studies, however, have been mostly focused on using CNTs both as conductors and semiconductors. Nevertheless, the effect of the field emission in CNTs can be considered from the aspect of electrical breakdown. In this paper we are studying the case for CNTs as nanoelectrodes for electric discharges, operating at high E/N and with high field enhancement factors. It was shown that the electric field is dramatically enhanced near the cap of a nanotube with large variation of local field distribution.

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Zoran Petrovic
Institute of Physics, Belgrade-Serbia

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