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Intensive electron emission in a strong electric field in vacuum nanoelectronics and high-power electronics

ABSTRACT. This paper briefly discusses the remarkable characteristics of the processes of field electron (FE) and explosive electron (EE) emission in a strong electric field. Special emphasis is placed on the recently discovered extraordinary fundamental effects occurring at carbon nanoclusters: the low-threshold FE and EE. Important possible practical applications of these phenomena are considered, including the opportunity to develop a new type of very compact X-ray devices.

Keywords: explosive emission, field emission, graphene, high-current electronics, low threshold field emission, nanotubes, portable X-ray devices, vacuum nanoelectronics

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