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Review on Peculiar Issues of Field Emission in Vacuum Nanoelectronic Devices

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Dedication:

To the memory of Dr. Dan Nicolaescu,
brilliant and enthusiastic scientist, lifelong good friend and collaborator,
who was prematurely and tragically taken away by a merciless malady.

Abstract.

Some of the modern aspects of field emission based electron sources have been collated in a short and comprehensive review. The usually overlooked peculiar aspects in this research field have been particularly emphasized in order to increase the interest in further fundamental studies and technological applications. The vast material was roughly split in two main branches which occasionally overlap: the electron emission devices based on chemically homogeneous nanostructured surfaces and the more complex nanocomposite emitting surfaces.

Keywords: Electron field emission; Nanostructured field emission cathodes; Composite electron field emitters

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