

FEDs

P.99: Field-Emission Properties of Screen-Printed CNT Film Morphology by LPE Method

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The film morphology of screen-printed carbon-nanotube emitters was modified using an ethanol liquid-phase method. The ethanol removed the soluble organic binder from the film. This simple surface treatment improved field-emission image uniformity and current density without requiring heat treatment.

P.100: Field-Emission Properties of Photosensitive Carbon-Nanotubes Using Ethanol

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Ethanol was investigated as a developer for a photosensitive CNT paste formulation. After screen-printing, the CNT paste was patterned and developed. Ethanol not only formed the pattern but also removed organic binders in the film. The emission properties of patterned CNT film with and without firing were evaluated.

P.101: Nanogap Fabrication on Palladium Electrodes for FED Applications

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Focused ion beams (FIBs) were used to produce nanogaps on palladium thin-film electrodes. The nanogaps were smooth and exhibited a large turn-on voltage for field emission. Hydrogen plasma treatment was used to increase the edge roughness of the nanogap and dramatically improve the field-emission characteristics.

P.102: Three-Dimensional Simulation of Novel Surface-Conduction Electron Emitter

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A structure made of Pd thin-film emitters on a substrate with gaps from 30 to 90 nm was investigated. The conducting mechanism and driving current with one field emitter were studied with 3-D simulation. The novel surface-conduction emitter structure has the advantages of simpler fabrication and high emission efficiency.

P.103: Anodic Aluminum-Oxide Templated Carbon Nanotubes for Field-Emission Triodes

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Carbon-nanotubes (CNTs) grown in anodic aluminum oxide (AAO) were used as field emitters in a triode structure. The field-emission characteristics of the CNT emitters have been studied, and an anode turn-on field of $\sim 8.05 \text{ V}/\mu\text{m}$ was measured.

P.104: New Cathode-Treatment Method for CNT-FED Manufacturing

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The sandpaper impression method was investigated in a field-emission display. A 25×25 -mm CNT device with an internal space of less than $400 \mu\text{m}$ was fabricated, and emission was obtained quite easily and at a projected low cost for CNT-FED manufacturing.