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Electron-emission materials

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ELECTRON-EMISSION MATERIALS



Electron-emission materials: Advances, applications, and models

> Daniele M. Trucchi and Nicholas A. Melosh, **Guest Editors**



Thermionic electron emission from single carbon nanostructures and its applications in vacuum nanoelectronics

Xianlong Wei, Qing Chen, and Lian-Mao Peng



Carbon nanotube photothermionics: Toward laser-pointer-driven cathodes for simple free-electron devices and systems Alireza Nojeh



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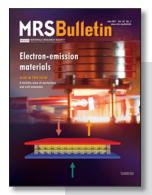
TECHNICAL FEATURE



A holistic view of nucleation and selfassembly

> **David Turnbull Lectureship** 2016 MRS Fall Meeting

James J. De Yoreo



ON THE COVER

Electron-emission materials: New generations of emission devices are continuously being improved based on innovative materials and the introduction of physical concepts. Nanotubes, nanowires, graphene, and electron emission models are discussed in this issue, as well as original mechanisms, such as the thermoelectric effect, thermionic emission, and heat-trap processes. The cover shows a photograph of a thermoelectronic energy converter in

operation and a sketch of a thermoelectronic energy converter, which shows that input energy absorbed in the top electrode (emitter) causes the emission of electrons, and are guided by a grid potential to the bottom electrode (collector). Images courtesy of R. Wanke et al. See the technical theme that appears on page 488.

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The Materials Research Society (MRS), a not-for-profit scientific association founded in 1973 and headquartered in Warrendale, Pennsylvania, USA, promotes interdisciplinary materials research. Today, MRS is a growing, vibrant, member-driven organization of over 16,000 materials researchers spanning over 80 countries, from academia, industry, and government, and a recognized leader in the advancement of interdisciplinary materials research.

The Society's interdisciplinary approach differs from that of single-discipline professional societies because it promotes information exchange across many scientific and technical fields touching materials development. MRS conducts three major international annual meetings and also sponsors numerous single-topic scientific meetings. The Society recognizes professional and technical excellence and fosters technical interaction through University Chapters. In the international arena, MRS implements bilateral projects with partner organizations to benefit the worldwide materials community. The Materials Research Society Foundation helps the Society advance its mission by supporting various projects and initiatives.

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