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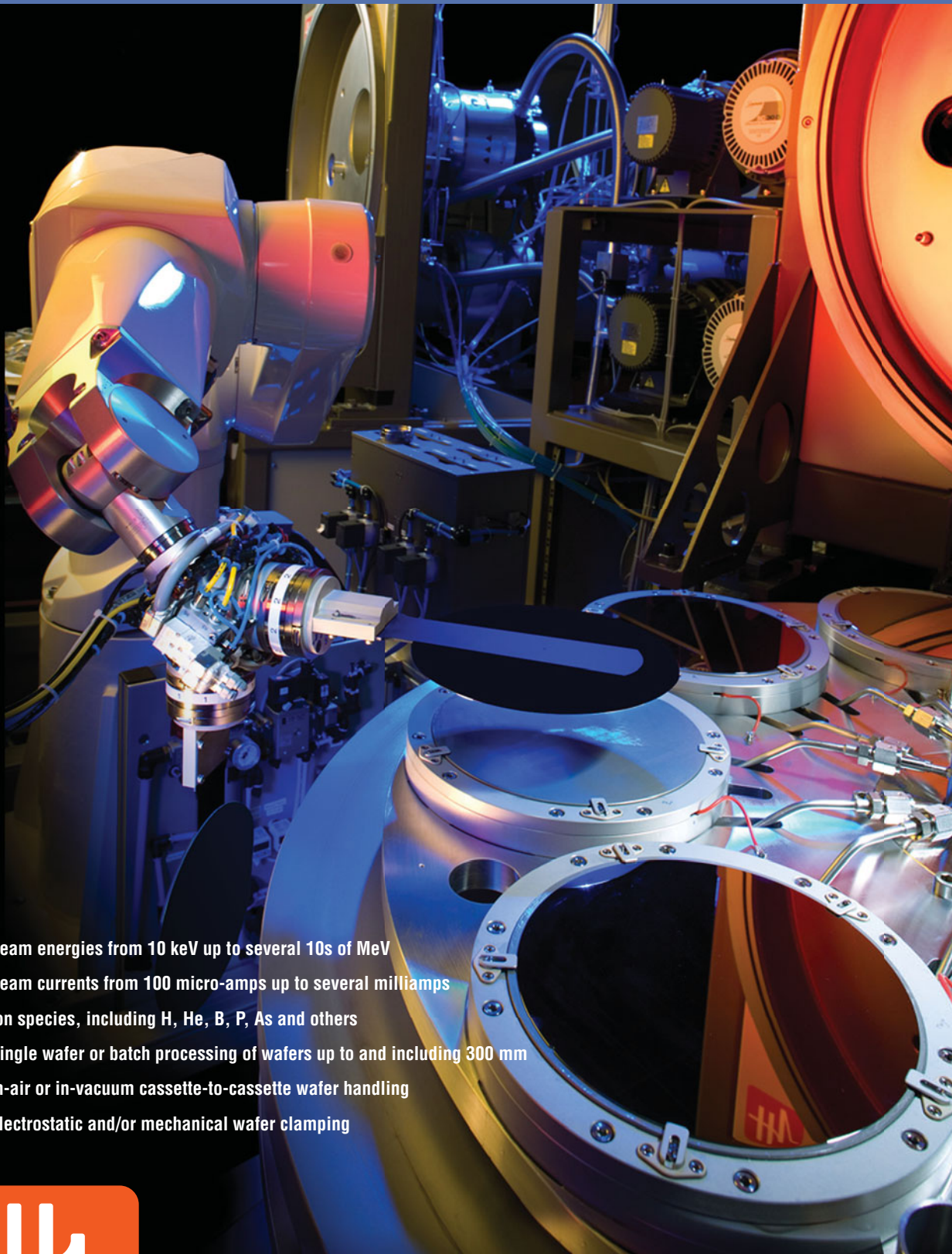
Metamorphic epitaxial materials

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Operando and x-ray pair distribution function methods for energy materials

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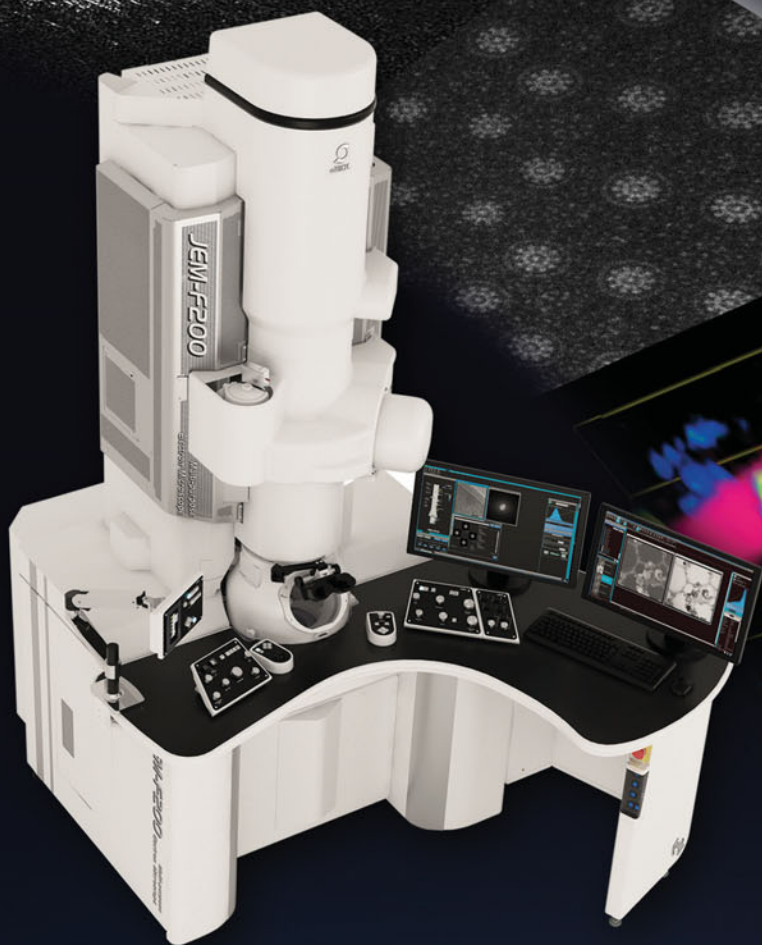
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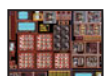
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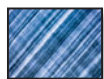
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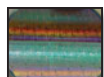


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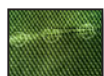
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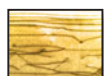
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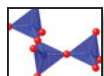
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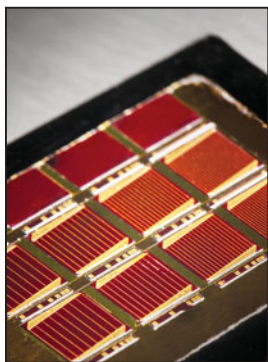
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ON THE COVER

Metamorphic epitaxial materials. Mechanisms of dislocation generation and methods of crystal growth are two rich areas of scientific study. These two fields converge in the area of metamorphic epitaxial materials. Metamorphic growth enables combinations of relaxed single-crystal materials to realize novel functionality and performance in many technological areas. On the cover is a high-

efficiency four-junction inverted metamorphic solar cell (4JIMM), enabled by low dislocation-density metamorphic materials. Several of the devices on the sample measured over 45.5% efficiency under concentrated light. The red "glow" of the devices is a result of strong photoluminescence from the high-quality material, indicating that radiative recombination dominates over non-radiative recombination. Ryan France is the designer of the solar cell, which received extensive development by the III-V team at NREL. Photo by Dennis Schroeder/NREL. See the technical theme that begins on page 193.



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* Please visit us at the exhibit, March 29–31, during the 2016 Materials Research Society Spring Meeting in Phoenix, Ariz.



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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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