Inside: Energy Quarterly EQ

MRS Bulletin

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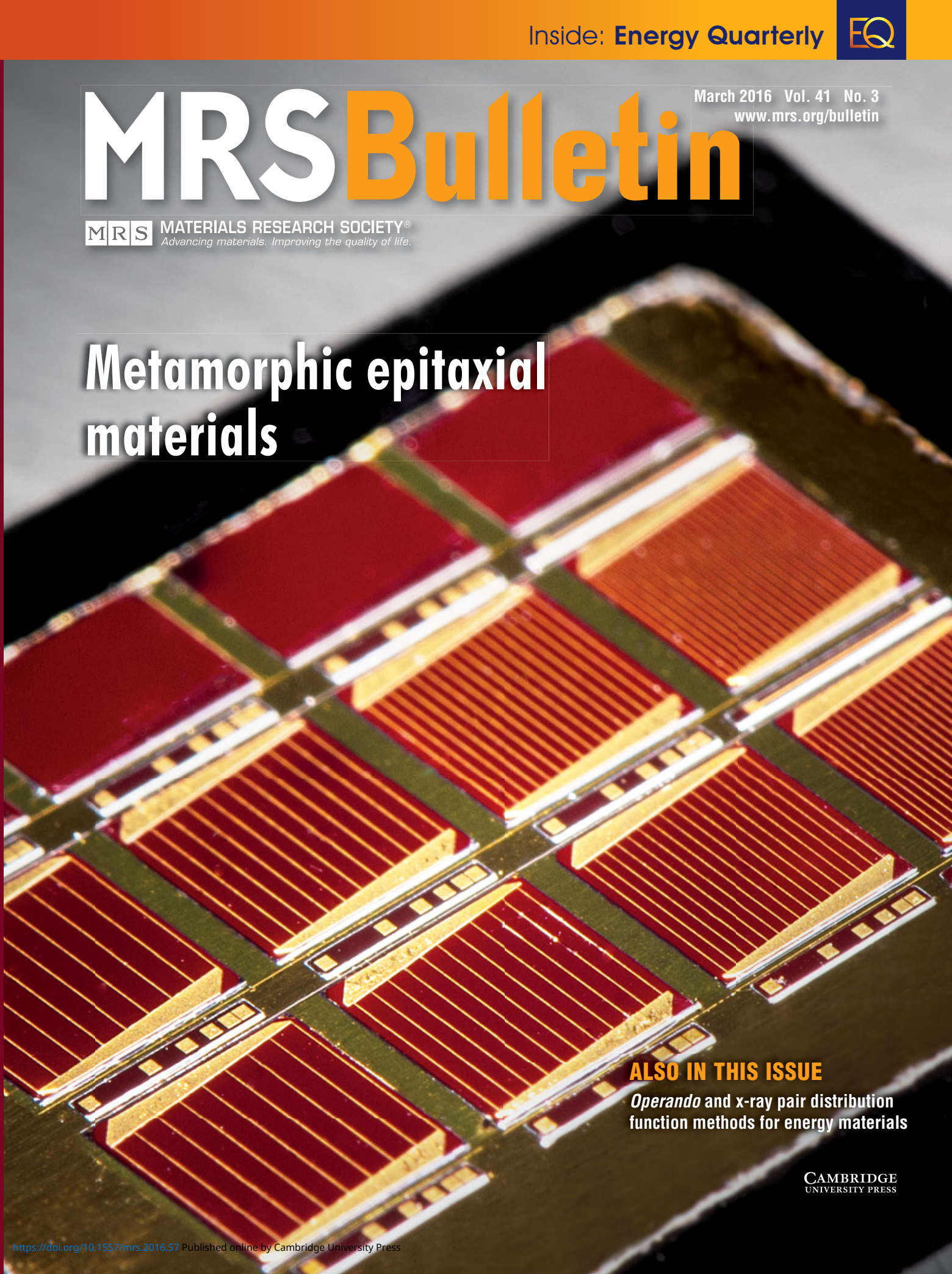
# Metamorphic epitaxial materials



## ALSO IN THIS ISSUE

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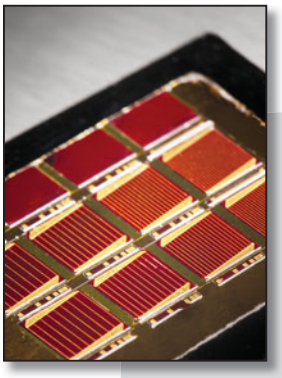

### ON THE COVER

**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**.

## FEATURES



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