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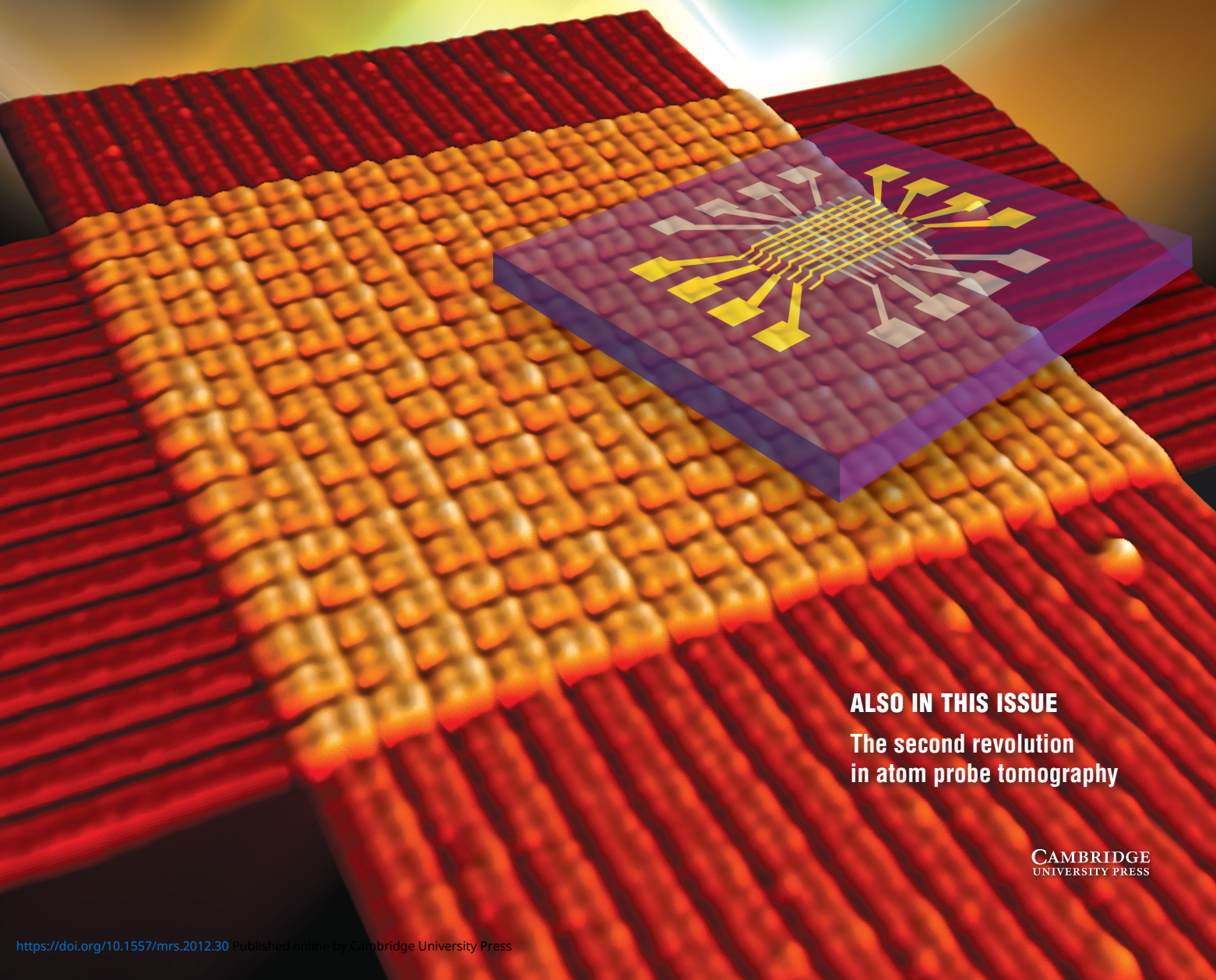
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Resistive switching phenomena in thin films: Materials, devices, and applications

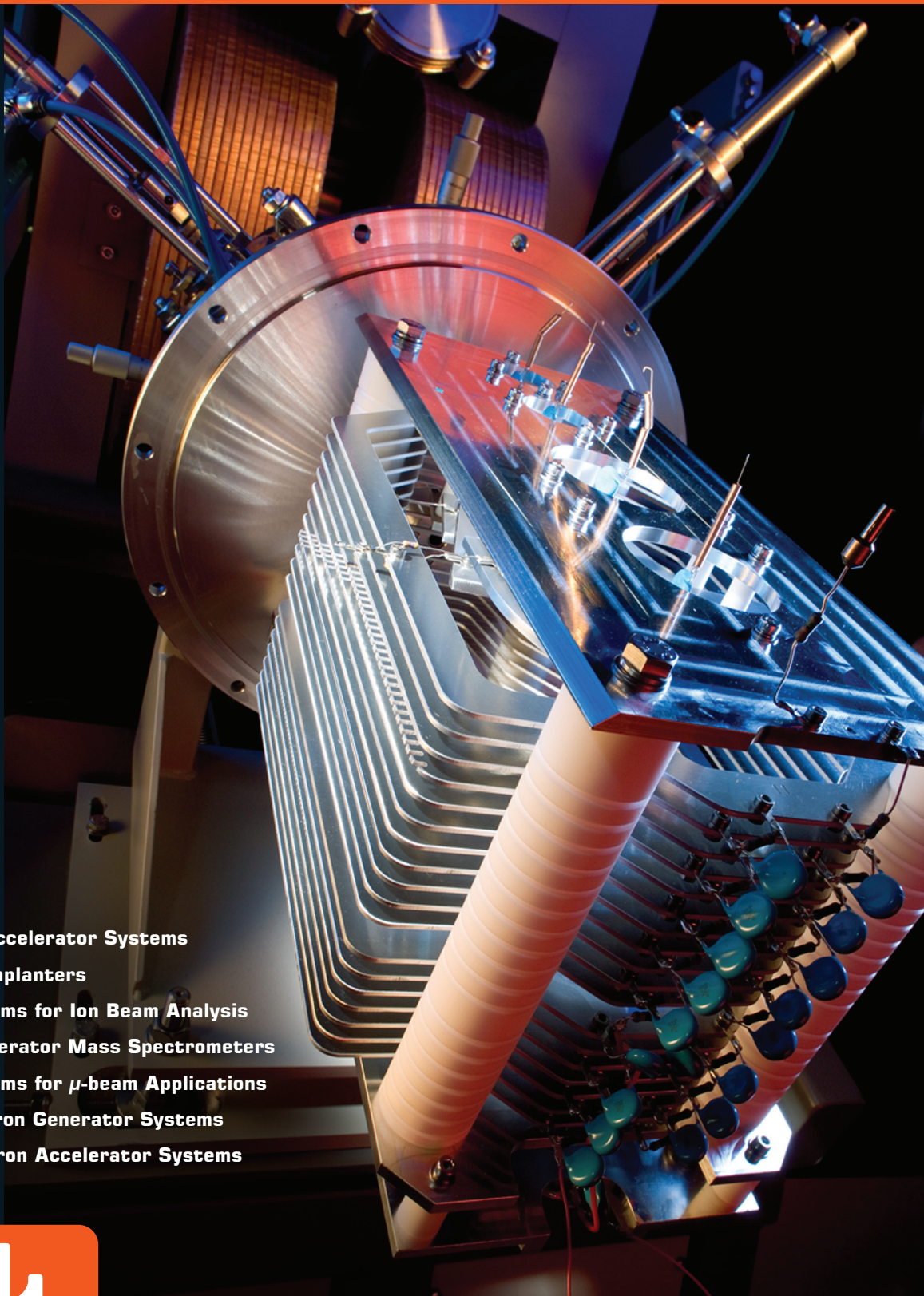


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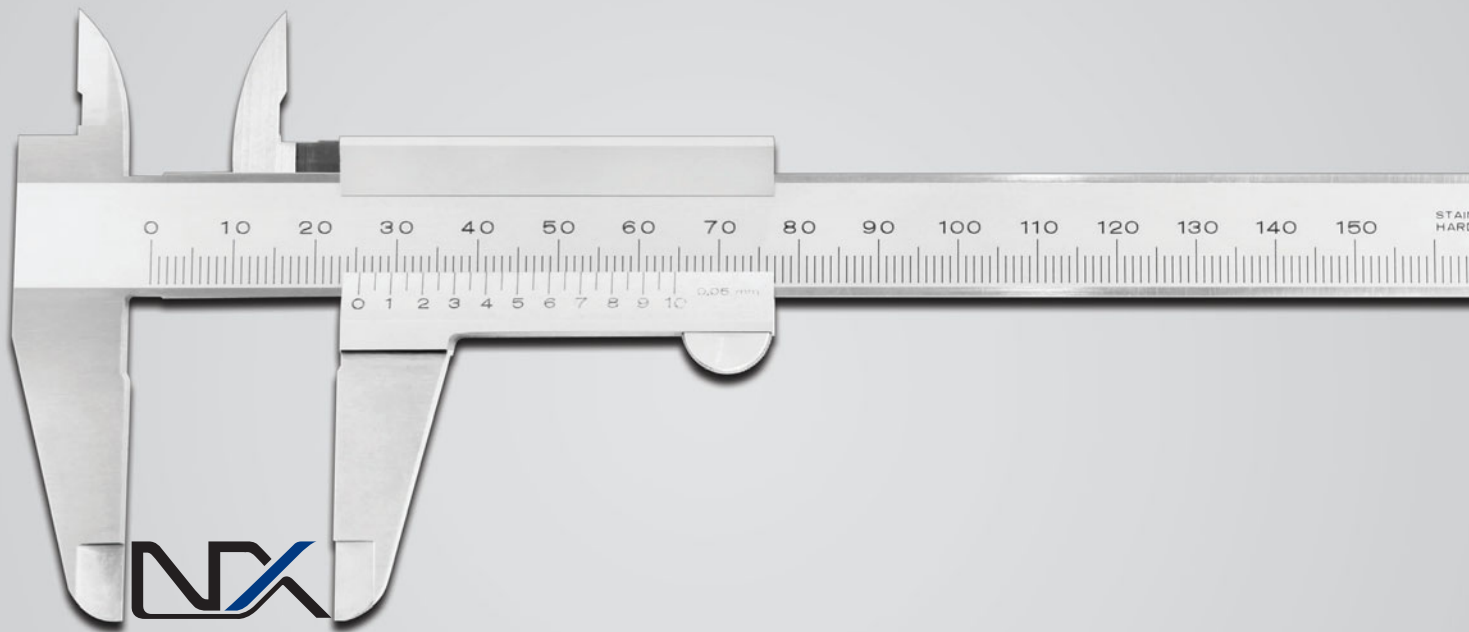


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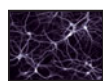


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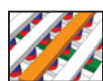
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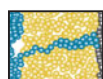
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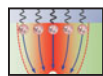
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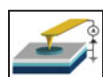
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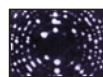
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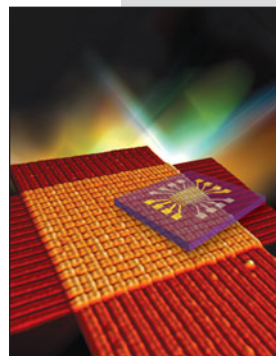


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ON THE COVER



Resistive switching phenomena in thin films: Materials, devices, and applications. This issue of *MRS Bulletin* starts by reviewing some of the promising applications of resistive switching phenomena in thin-film devices, and then follows with the detailed discussion of current state-of-the-art understanding of the physics behind this phenomenon in several major classes of material systems. The cover shows a 17×17 crossbar array of 50-nm-thick TiO_2 memristors defined by 50-nm-wide platinum electrodes spaced by 50 nm gaps. (Image courtesy of J. Joshua Yang, G. Medeiros-Ribeiro, and R. Stan Williams of Hewlett Packard Labs.)

A schematic illustrating a crossbar array memory circuit with a unit cell size of $100 \times 100 \text{ nm}^2$, fabricated by a direct metal-transfer process, is superimposed on the right (adapted from Kim et al., *Adv. Mater.*, **23**, 2104 [2011]). See the technical theme that begins on page 108.

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