

# MRS Bulletin

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*Advancing materials. Improving the quality of life.*

## Materials for biological modulation, sensing, and imaging

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Coupled multiscale simulation and validation in nuclear materials

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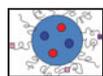
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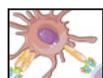


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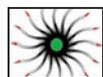
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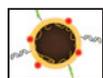
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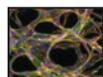
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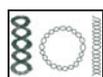
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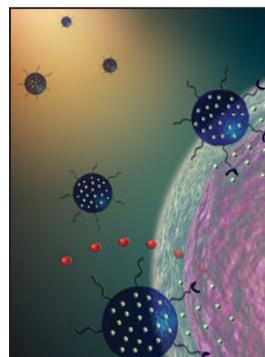
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### ON THE COVER

**Materials for biological modulation, sensing, and imaging.** This issue of *MRS Bulletin* explores the design of materials that have proved capable of reporting biological activities in cells and identifies current challenges. The articles also focus on future developments of multifunctional materials for sensing applications and therapies. A variety of bioactive materials are being designed to sense and modulate diverse cellular activities and function, while being

monitored by various imaging modalities. The cover image depicts nanoparticles devised as a vehicle to deliver signaling molecules to target cells via specific receptor-ligand binding. The molecules released from the materials activate cellular expression and secretion of proteins crucial for the development, regeneration, and pathogenesis of tissues and organs. See the technical theme that begins on page 12.

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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 encompassing approximately 125 topical symposia, 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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