

MRS Bulletin



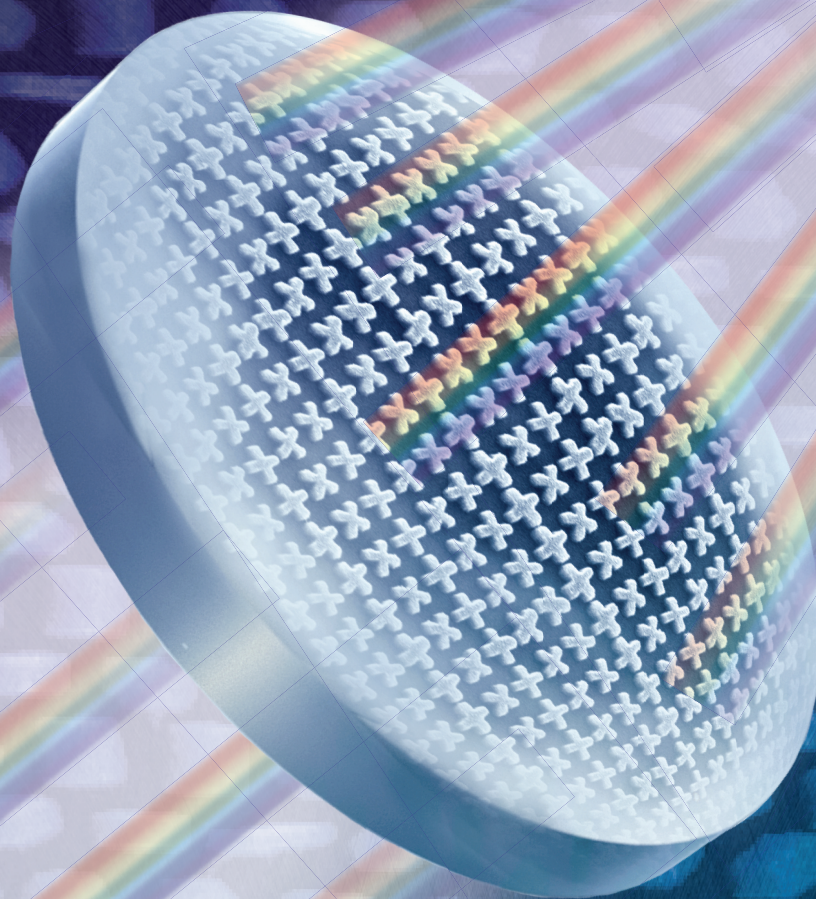
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Advancing materials. Improving the quality of life.

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Metasurfaces for flat optics

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- EL03 Emerging Low-Dimensional Chalcogenides for Electronics and Photonics
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- EN03 Overcoming the Challenges with Metal Anodes for High-Energy Batteries
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- MT02 Multimodal, Functional and Smart Scanning Probe Microscopies for Characterization and Fabrication
- MT03 Frontiers of Imaging and Spectroscopy in Electron Microscopy
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- MT05 Advancing Materials Characterization Through Atom Probe Tomography
- MT06 Strain and Defect-Driven Transport Properties in van der Waals Solids
- MT07 Data Science and Automation to Accelerate Materials Development and Discovery

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2021 MRS Fall Meeting & Exhibit
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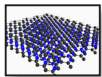
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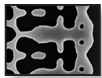
METASURFACES FOR FLAT OPTICS



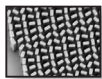
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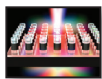
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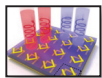
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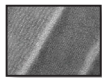


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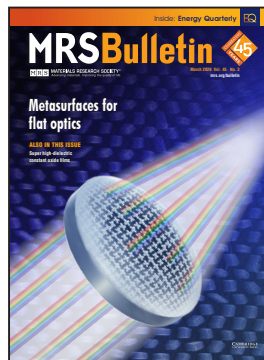
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ON THE COVER

Metasurfaces for flat optics. Metasurfaces consisting of subwavelength optical antenna arrays have emerged as planar optical devices that enable many promising applications. The subwavelength antenna is designed to locally control the amplitude, phase, or polarization of light. Metasurfaces provide unprecedented opportunities to overcome the limitations of conventional lenses and have demonstrated promising applications, such as high-numerical aperture ultrathin lenses, high-resolution multicolor holograms, and optical skin cloaks. Metasurfaces have been developed for specific functionalities by exploiting new materials

and design algorithms. The articles in this issue of *MRS Bulletin* provide a comprehensive understanding of metasurfaces and their novel applications. The cover shows the operating mechanism of a metasurface used as a lens (metalens) and a scanning electron microscope image of a particular metalens in the background. The metalens can focus light beams using phase control by the metasurface. See the technical theme that begins on p. 180.



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About the Materials Research Society

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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