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Materials for hot-carrier chemistry

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Journal of MATERIALS RESEARCH
JANUARY 2021

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Submission Deadline—June 1, 2020

Early Career Scholars in Materials Science 2021

The Sixth Annual *JMR* Issue to promote outstanding research by future leaders in materials science

JMR invites research and review articles by materials researchers who have completed their PhD but have not yet been appointed as full professor, or equivalent position in non-academic organizations, at the time of submission, for peer review and publication in this special issue. The Annual Issue provides a unique opportunity to be highlighted and promoted early in one's research career. To increase attention, the issue will be published on an **open access** basis. Although papers may have multiple authors, only the Early Career Scholar submitting the paper will be identified with a photo and brief bio on publication.

JMR publishes the latest advances about the creation of new materials and materials with novel functionalities, fundamental understanding of processes that control the response of materials, and development of materials with significant performance improvements relative to state-of-the-art materials. *JMR* welcomes papers that highlight novel processing techniques, the application and development of new analytical tools, and interpretation of fundamental materials science to achieve enhanced materials properties and uses.

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To be considered for the issue, the Early Career Scholar must not yet be a full professor at the time of submission. The manuscript must report new and previously unpublished results. Review articles are invited but must be approved by the editors before submission (see mrs.org/jmr-manuscript-types/ regarding review articles). Manuscripts must be submitted via the *JMR* electronic submission system by **June 1, 2020,** to be considered for the issue due to time constraints on the review process. Submission instructions can be found at mrs.org/jmr-instructions. Please select "ANNUAL ISSUE: *Early Career Scholars in Materials Science 2021"* as the manuscript type. **Note our manuscript submission minimum length of 3250 words, with at least 6 and no more than 10 figures and tables.** (Additional figures and tables may be submitted as supplemental material.) All manuscripts will be reviewed in a normal but expedited fashion. Papers submitted by the deadline and subsequently accepted will be published in the Annual Issue. Other manuscripts that are acceptable but cannot be included in the issue will be scheduled for publication in a subsequent issue of *JMR.*

Papers must be accompanied by a photo (uploaded as a high resolution TIF or EPS file) and 200—300 word bio of the Early Career Scholar only. (Bios should NOT include reference to one's publication record nor rationalization of the research area or paper submitted.) These materials must be submitted along with the original submission of the paper.

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Please contact **jmr@mrs.org** with questions.

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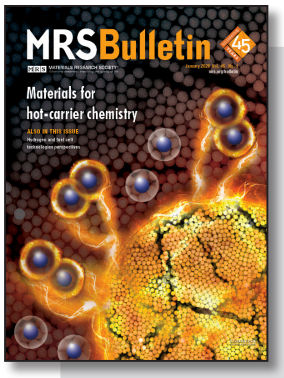
MATERIALS FOR HOT-CARRIER CHEMISTRY

SPECIAL FEATURE



ON THE COVER

Materials for hot-carrier chemistry. The promise of photoexcited hot-electron chemistry (and the complementary hot-hole chemistry) is supported by its application in many important reactions, including CO_2 reduction, water splitting, hydrogenation, and coupling reactions, highlighting its potential in achieving high energy-conversion efficiency and product selectivity. Hot-electron chemistry represents a fundamentally different solar energy-conversion mechanism compared to traditional photochemistry. This issue of *MRS Bulletin* examines the generation and relaxation of hot electrons in typical nanoparticle systems upon light absorption and the flow of hot electrons across the surfaces of the nanoparticles. On the cover, the bottom right image is a photoexcited nanoparticle. The pairs of transparent balls with blue cores represent reactant molecules. The individual transparent balls with blue cores represent the product molecules, which are formed from the interaction of the reactant molecules with hot electrons on the surface of the nanoparticle. See the technical theme that begins on p. **20**.

COMING IN FEBRUARY 2020
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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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