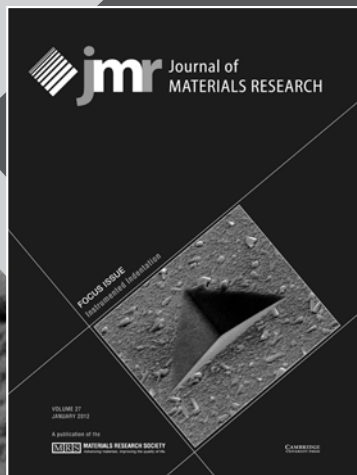


Submission Deadline—May 5, 2011



## Instrumented Indentation

Research on indentation has seen significant growth in recent years and *Journal of Materials Research* has been there to document the progress – boasting three highly cited focus issues on the topic over the past decade. With two years passed since the last focus issue on indentation, and with no sign of declining interest, the time seems ripe to visit the subject again. The swift evolution of instrumented indentation is the result of a rapid convergence of (1) improved fundamental understanding of indentation mechanisms, (2) advances in instrumentation, and (3) diverse applications of instrumented indentation in multiple research fields. This special focus issue, **scheduled for publication in January 2012**, will offer a snapshot of the state of the art in indentation and highlight current and emerging topics.

### Contributed papers are solicited in the following areas:

- ◆ Extracting mechanical properties of materials, including thin films, nanomaterials, and biological materials
- ◆ Modeling and simulation of instrumented indentation
- ◆ Nanomechanics and *in-situ* indentation
- ◆ Instrumented indentation under various environmental conditions
- ◆ Application to advanced and smart materials
- ◆ Analysis of deformation and fracture during indentation
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Submission Deadline—June 28, 2011



## Advances in Mechanics of One-Dimensional Micro/Nanomaterials

Fabrication of one-dimensional materials—nanotubes, nanowires, and nanopillars—is an area of significant interest, as these materials have promising applications in electronics, composites, optics, and MEMS. In many application venues, including flexible systems, the mechanical properties of 1-D materials can determine both reliability and performance. Experimental and theoretical modeling of 1-D materials subjected to mechanical straining demonstrates unexpected behaviors, including crystal structure transformation, brittle-to-ductile transition, and remarkable ductility. Both experimentalists and modelers will come together in a **February 2012 focus issue of *Journal of Materials Research*** to discuss the latest on deformation, failure, and mechanics of 1-D materials across micro- and nanoscales.

### Contributed papers are solicited in the following areas:

- ◆ Mechanical properties of nanotubes, nanowires, and nanopillars
- ◆ Mechanical failures in nanotubes, nanowires, and nanopillars
- ◆ Deformation and strengthening mechanisms in nanotubes, nanopillars, and nanowires
- ◆ Theoretical modeling and simulation of fracture and deformation

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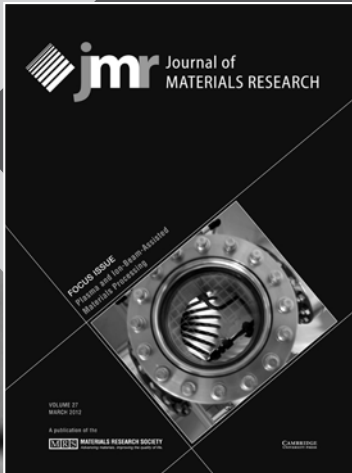
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Submission Deadline—July 15, 2011



## Plasma and Ion-Beam Assisted Materials Processing

Advanced methods of plasma-based deposition and functionalizing surface treatments enable local control of material chemistry with a high degree of freedom through complex interactions and out-of-equilibrium conditions. **In March 2012, *Journal of Materials Research* will publish a special Focus Issue** highlighting the state of the art of plasma chemistry and physics for materials synthesis. Current progress in low energy (>5kV) ion-beam processing of surfaces, thin films, and nanostructures will also be featured.

### Contributed papers are solicited in the following areas:

- ◆ Plasma-based ion implantation, subplantation, etching, and deposition
- ◆ Ionized physical vapor deposition
- ◆ Progress in plasma-based methods for TCO synthesis and growth
- ◆ Filtered cathodic arc deposition of metastable nitrides and carbides
- ◆ High-power impulse magnetron sputtering of novel thin-film materials
- ◆ Phase formation in oxide layers synthesized by pulsed deposition techniques
- ◆ New applications of plasma-immersion ion implantation and deposition
- ◆ Hybrid physical vapor deposition for preparation of nanocomposite films
- ◆ Plasma-assisted chemical vapor deposition
- ◆ Surface functionalization using atmospheric DBD treatments

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