



### JM<sup>3</sup>, A New SPIE Journal in Microtechnologies

Early in 2002, SPIE will launch a journal covering microtechnologies, titled the *Journal of Microlithography, Microfabrication, and Microsystems*. That is quite a mouthful; so early in its development, the title was abbreviated to JM<sup>3</sup>.

The journal was established because it was recognized by the Publications Committee of SPIE, led by John Greivenkamp from the Optical Sciences Center at the University of Arizona, and a New Journals Committee, chaired by Joe Mait of the Army Research Lab, that the distinct research communities in microlithography, microfabrication, and microsystems are developing the infrastructure in tools and techniques needed for the next generation of sensors, processors, and communications networks. The maturity of these technologies is evident from the growth of the number and size of conferences related to these topics. Well over 1000 papers in these fields are presented annually at various SPIE conferences.

Further, these communities presently work somewhat independently of each other. Although they pursue different technical goals, they share the same technical objective: to develop devices and systems that are smaller, more powerful, and more integrated than presently available. By launching a single journal that serves these communities, the Society hopes to capitalize on the synergy among them, to serve a significant percentage of its membership, and to attract new engineers and scientists working in these fields.

The emphasis of this journal is the development of lithographic, fabrication, and packaging technologies necessary to address the future needs of the electronics, micro-opto-electro-mechanical (MEMS and MOEMS), and photonics industries. However, a unique feature of the journal will be its additional emphasis on the development of processes to integrate different technologies, e.g., electro-optical and opto-mechanical, and on the modeling, design, analysis, applications, and testing of such integrated systems. The journal will have distinct sections covering these areas.

The scope is broad to facilitate synergy and interest

between the communities served by the journal. The journal will publish papers on developments in the following areas:

- **Microlithography**

The emphasis of this section is on the tools, processes, and materials associated with the lithography of structures that have submicron features.

- **Microfabrication and Micromachining**

The emphasis of this section is on technologies to shape three-dimensional structures leading to the fabrication of active and passive electronic, electro-mechanical, optoelectronic, and opto-electro-mechanical devices, as well as passive optical devices.

- **Microsystems**

The emphasis of this section is on core processes and technologies necessary for packaging and integration, with a focus on wafer-scale and other volume integration methods.

Based on his exceptional qualifications, Dr. Burn Jeng Lin of Taiwan Semiconductor Manufacturing Company, Ltd. (TSMC), has been appointed Editor-in-Chief of the journal. Dr. Lin is a senior member of IEEE and a member of SPIE. He is a past-chair of the SPIE Microlithography Symposium and currently serves on the editorial board of this journal. His accomplishments include several seminal papers in microlithography. He has authored two book chapters, 60 articles, and holds 28 U.S. patents. Dr. Lin earned his PhD in electrical engineering from Ohio State University. He has been a research staff manager at IBM T. J. Watson Research Center; a department manager at IBM GTD, Burlington; staff member at IBM ASTC East Fishkill; assignee at SEMATECH; and most recently was president of Linnovation, Inc. He is now Senior Director of the Micro Patterning Division of TSMC.

Because of the content and approach of the journal, the editorial structure of JM<sup>3</sup> will be different from SPIE's other journals. Dr. Lin as Editor-in-Chief has appointed senior editors in each of the three major areas. Bill Arnold

of ASML, The Netherlands, has been appointed Senior Editor, Microlithography, Hans Peter Herzig of the University of Neuchatel, Switzerland, has been appointed Senior Editor, Microsystems, and James H. Smith of Transparent Networks, Inc., has been appointed Senior Editor, Microfabrication. Associate Editors have been selected to ensure coverage of the various topical areas. In an enterprise such as this there is a need for a comprehensive editorial board. I often marvel at how well we manage to stretch the *Optical Engineering* Board of Editors to cover some of the papers that are submitted. It will take a sympathetic eye and understanding on the part of the editorial board to include the various groups in the audience for this new journal. It may take some time for the readers to grow to understand and appreciate the work of their peers.

As with SPIE's three other journals, the peer-review process will be administered through SPIE headquarters in Bellingham. The plans are to publish the journal in both print and electronic formats as a quarterly initially, and then assess the level of interest by the number of submissions and circulation. The premier issue is targeted to appear at the 2002 Microlithography Symposium in March 2002.

With every new journal there is the challenge of attracting authors and readers. It is a building process that establishes the credentials of the journal by the strength of the papers that are published. But the process also depends on identifying both scientists and engineers who produce papers that will attract readers and the communities that will benefit from their papers. There's a little bit

of a chicken-and-egg routine going on here, so that success cannot be guaranteed. It will be up to Dr. Lin and his Board of Editors to convince these communities that JM<sup>3</sup> is the best place to publish. Submissions are now being accepted for the inaugural 2002 issues. So, if you are working in these areas and have a paper you wish to publish, consider submitting it to JM<sup>3</sup>.

For the past few years, a modest number of papers, mostly from the lithography community, have been submitted to *Optical Engineering*. With this new journal, these papers will have a more appropriate outlet. Beginning in June, any paper that is appropriate for JM<sup>3</sup> will be sent to Dr. Lin, who will assume a dual role as Associate Editor for this journal and as Editor-in-Chief of the new journal during a transition period. At the same time, a letter will be sent to the corresponding author informing him or her of this action. We will include information on the new journal and ask the author where they wish to publish, because the first rule of journal publication is: An author is free to submit a paper to any journal he or she chooses.

I think this journal is an imaginative and well-prepared project that could be a means of providing a sense of unity and community for these hitherto separate fields. I wish Burn and his Board of Editors great success in this new venture.

**Donald C. O'Shea**  
Editor