MSRI
Mathematical Sciences Research Institute

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Media Advisory

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MSRI announces new lecture series on how math drives breakthroughs in the innovative design of life-saving medical devices

- **WHAT – "The Math Behind the Cath: the Inside Story of Stents, Pacemakers, and Other Medical Miracles." Two speakers—one in biomedical R&D, the other an artist-mathematician—share their perspectives of how math underlies the invention of medical devices.**

  Few people realize the key role that mathematics has played in the astonishing advances in the design and functioning of today's medical devices. These advances have saved countless lives and illustrate the remarkable ability of mathematical ideas to provide new insights into real-world problems and to improve our lives. Joseph Berglund will present an overview of cardiovascular devices and the mathematics involved in creating such innovative inventions as well as what developments may be expected in the future. Robert J. Lang will show how the introduction of mathematics into origami, the centuries-old Japanese art of paper-folding, led to the solution of a broad class of origami folding problems in art and enabled origami designs of mind-blowing complexity and realism. But as often happens in mathematics, theory originally developed for its own sake has led to some surprising practical applications, and the algorithms and theorems of origami design turn up in proteins, membranes, and a variety of medical devices.

- **WHEN – MONDAY, MAY 4, 2009 at 7:00 pm to 9:00 pm.**

- **WHERE – Roda Theatre, Berkeley Rep**, 2015 Addison Street, Berkeley (near the Downtown Berkeley BART station on Shattuck Avenue). For a map and directions: http://www.berkeleyrep.org/planyourvisit/index.asp

- **WHO – JOSEPH BERGLUND, PhD,** is the Principal R&D Engineer at Medtronic CardioVascular in Santa Rosa. Joe's undergraduate training at Johns Hopkins University was in biomedical engineering, materials science and applied mathematics. He received his doctorate at Georgia Tech, where his research included working on biosynthetic blood vessel substitutes for by-pass surgery. His current projects vary from development of next generation drug eluting stents, to designing bioabsorbable devices, to identifying and evaluating new therapy options for various unmet clinical needs.

  ROBERT J. LANG, PhD, is recognized as one of the foremost origami artists in the world as well as a pioneer in computational origami and the development of formal design algorithms for folding. With a doctorate in Applied Physics from Caltech, he has, during the course of work at NASA/Jet Propulsion Laboratory, Spectra Diode Laboratories, and JDS Uniphase, authored or co-authored over 80 papers and 45 patents in lasers and optoelectronics as well as eight books and a CD-ROM on origami. He is a full-time artist and consultant on origami and its applications to engineering problems but moonlights as the Editor-in-Chief of the *IEEE Journal of Quantum Electronics.*

- **HOW – FREE ADMISSION!**

- **SPONSOR –** The **MATHEMATICAL SCIENCES RESEARCH INSTITUTE (MSRI)**, based in Berkeley, invites the public to a new series of talks on math and medicine by experts working in both fields. The evening will include a discussion with the speakers joined by David Eisenbud of UC Berkeley and Bob Osserman of MSRI. Please see: www.msri.org/calendar/specialevents/SpecialEventInfo/385/show_specialevent

- **PHOTOS –** By request, photos of the speakers and medical devices are available.

The **Mathematical Sciences Research Institute (MSRI, www.msri.org)** is one of the world's preeminent centers for research in the mathematical sciences, and has been advancing mathematical research through workshops and programs since its founding as an independent institute in 1982. More than 2,000 mathematical scientists visit MSRI each year in Berkeley, CA, many for stays of up to one academic year. The Institute has been funded primarily by the National Science Foundation with additional support from other government agencies, private foundations, academic and corporate sponsors, and individual donors.