New Technologies for Unmet Medical Challenges

Technologies with previously unimaginable capabilities are rapidly coming online today.

This forum will explore how some of these innovations are just now being brought to bear against today’s medical challenges.

Program Description

We will look at two such technologies which are revolutionizing industry, MEMS and diode lasers. These are just starting to make inroads in medical applications at this time but offer unlimited potential.

MEMS or Micro-Electro-Mechanical Systems are chips made in semiconductor fabs that combine electronic functions and mechanical actions. Currently these are used in industry as sensors and actuators such as in ink jet printers, automotive motion sensors, and digital projectors. But MEMS can also be used in the medical field to measure blood pressure within the body, detect ions, perform biological tests, and even sequence DNA. **Tim Stucchi** will examine a few of the potential applications of this tiny technology which will have big implications in fulfilling future medical needs.

Common drawbacks to conventional laser technologies have been their size and complexity. Diode lasers offer new wavelengths not possible with the current industrial lasers and the potential for portable systems that are handheld and battery powered. **John Callahan** will discuss their unique attributes and how these are being used in medical applications.

Unfortunately many futuristic tools never cross the threshold to widespread applications. Our third presentation by **Maria Shepherd** brings into focus the down-to-earth considerations required to develop today’s cutting edge technology into tomorrow’s clinical and research tools.

Exhibitors at the Forum

Following the success of the November Forum, MDG is hosting over 20 exhibitors who are relevant to the topic. They each have a table for display of their expertise and are available for discussions before and after the Forum presentation.
Moderator

**Dennis Leiner, Ph.D.**
Founder and Chief Technology Officer
Lighthouse Imaging Corporation

Dennis received his Bachelor’s and Master’s Degrees in Optics from the University of Rochester Institute of Optics and his Ph.D. from the University of Connecticut.

He is listed as inventor or co-inventor on more than 20 patents and has published numerous papers in the areas of medical optics and optical instrumentation.

He is the founder and Chief Technology Officer of Lighthouse Imaging Corporation, a leading developer and OEM of medical optical devices.

Dennis is a United States delegate to the International Standards Organization (ISO) and is the project leader for international endoscope standards reviews.

He is a Director at OEOSC, the technical arm of ANSI concerning optics.

Dennis is a member of the Board of Directors of the Maine International Trade Center.

Presenters

**John Callahan, Ph.D.**
Vice President of Engineering
SemiNex Corporation

John has helped pioneer semiconductor laser technology for telecommunications, datacom, and industrial applications having developed over 300 different products.

Prior to joining SemiNex, John was Director of Research and Development for Cubic Wafer where he led the efforts to develop a high density packaging technology for the semiconductor industry.

From 2002 to 2005, John was with Xanoptix, Inc. as Director of Research and Development. He oversaw the IC, Mechanical and Processing Engineering teams developing the world’s highest density fiber coupled optical transceiver.

John was significantly involved with the design and fabrication of the optical components and the packaging technology.

Prior to Xanoptix, John developed processing and packaging technology for VCSEL’s, p-i-n detectors and other custom optoelectronics. John has a Ph.D. in Electrical Engineering from the Georgia Institute of Technology.

**Timothy C. Stucchi**
Director of Operations, Agiltron

Tim joined Agiltron in 2013 to establish MEMS development and manufacturing capabilities. Over the last two years Tim and his team have built a class 100 cleanroom, acquired and installed the process equipment and brought on new customers.

Prior to Agiltron, Tim was Founder and CEO of Advanced MicroSensors Inc., a magnetic products and MEMS company. He led AMS from a start-up to a multimillion dollar corporation.

Before AMS, Tim spent two decades in senior operational and financial roles at Quantum and DEC, establishing manufacturing operations in the US and Asia.

Tim is a graduate of Boston College, Babson College (MBA) and Harvard University’s Program for Management Development (PMD).

**Maria Shepherd**

Founder, Data Decision Group

Maria has 20 years of leadership experience in medical device and life sciences marketing in small start-ups and Fortune 100 companies.

She founded Data Decision Group (www.ddecision-group.com) after a career in industry that included serving as Vice President of Marketing for Oridion Medical (acquired by Covidien/Medtronic), Philips Medical and Boston Scientific.

Maria has also served on the corporate board of the Anesthesia Patient Safety Foundation.

Data Decision Group provides marketing, business strategy and innovation research. Boasting a highly experienced team with operational experience working in medical devices, Data Decision Group synthesizes and transfers innovation research into product design recommendations that can be rapidly and profitably integrated into product development.

Maria received her MBA, magna cum laude, from Babson College, cited by USA Today as the top US entrepreneurial program. She also earned a BA in Biology from University of Pennsylvania.

Co-Champions

**Peter Madras, M.D.**
President MDG Boston

**Geoff Moodie, Ph.D.**
Principal Scientist
Maquet Corporation
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We would like to thank the hundreds of volunteers who help to make this organization a success.

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**About MDG Boston**

MDG is the professional association for career building, knowledge acquisition and mutual support for New England medical technology professionals.

MDG sponsors Forums, Networking, SIGs (Special Interest Groups), Workshops and Special Events where diverse industry leaders can share their experience and knowledge as presenters and through peer-to-peer communications.