



## **Annual First Look Forum: What's Brewing in MKE?**

Hosted jointly by the UWM Research Foundation,  
The Medical College of Wisconsin Office of Technology Development, and  
Marquette University  
Virtual Event

### **Agenda**

#### **2:00-2:20 pm - Welcome; Opening remarks**

- Mark Mone, Ph.D., Chancellor, University of Wisconsin - Milwaukee
- John R. Raymond, Sr., MD, President and CEO, Medical College of Wisconsin
- Michael R. Lovell, Ph.D., President, Marquette University

#### **2:20-3:45 pm - Presentations and Panel Discussion**

# Annual First Look Forum

Virtual, April 21<sup>st</sup>, 2021, 2:00 p.m.

## Presentations



**Kyle Jansson**  
Director, Prototyping Center, UW-Milwaukee

### **“Self-adjusting dust collector for automated routing”**

Computer numerical control (CNC) routing or machining removes material ranging in the form of tiny chips to microscopic debris. From production factories to garage hobbyists, dust has costly negative consequences in terms of throughput, health, and cleanliness. Historical and current methods at best collect debris with 50% efficiency, which has become the status quo. Due to the technical complexities in this interface, there are very few feasible options to address efficient dust collection without a tradeoff of productivity or upfront cost. Our novel self-adjusting system not only collects all of the dust – but it comes at a price that will pay for itself quickly relative to the costs of dealing with debris secondarily without decreasing productivity.

**Amit Joshi, Ph.D.**  
Associate Professor of Biomedical Engineering, MU and MCW

**Joseph E. Kerschner, MD**  
Provost and Executive Vice President and Dean,  
School of Medicine, MCW

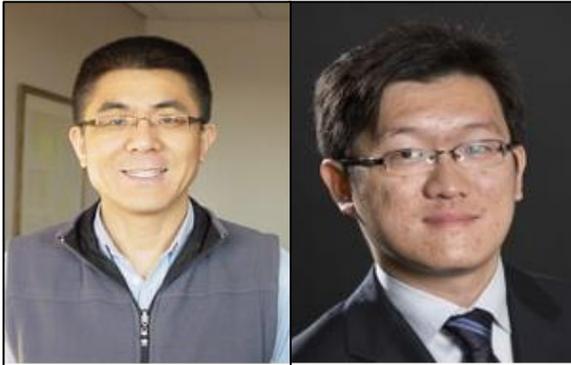


### **“Novel non-invasive therapies for treating ear infections”**

Otitis media (OM) is typically treated with systemic oral antimicrobial agents. These systemic treatments frequently result in therapeutic resistance or cause adverse side effects. Currently, many children with chronic OM undergo surgical intervention with tympanostomy tube placement and no alternative non-invasive therapies exist. The impermeability of the tympanic membrane (TM) has strongly limited the topical delivery of therapeutics to the middle ear. Increasing the transport of antibiotics across the TM is critical for success of topical treatment. Drs. Kerschner and Joshi have invented a patent-pending nanoparticle-based drug carriers to enable this increased transport of both antibiotic and steroid drugs.

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**Shangping Xu, Ph.D.**

Associate Professor of Geosciences, UW-Milwaukee

**Yin Wang, Ph.D.**

Assistant Professor of Civil & Environmental Engineering, UW-Milwaukee

**“Novel ceramic filters for the production of safe drinking water”**

More than 2 billion people globally do not have the access to safe drinking water. We have developed novel ceramic filters (patent pending) that are affordable, easy to use and maintain, and effective at removing a variety of major water contaminants such as bacteria, virus, and Arsenic. The filters can be manufactured into different forms (e.g., disk, candle, bucket, and granular column) to meet various water treatment needs. In developing countries, the filters can be used at household and community levels to produce safe drinking water from surface water and shallow groundwater through removing bacteria and virus. In the developed countries, this technique represents a viable choice to produce portable water for outdoor activities (e.g. hiking). Additionally, our ceramic filters can be used to provide safe drinking water during natural disasters (e.g., earthquake, flooding) when the water supply system becomes unavailable or unreliable.

**Nicole Lohr, MD, PhD, FACC**

Associate Professor, Medical Director  
Cardiovascular Clinical Trials, MCW

**Michael Salinger, MD, FACC, FSCAI**

Professor, Cardiology/Cardiovascular Medicine,  
MCW

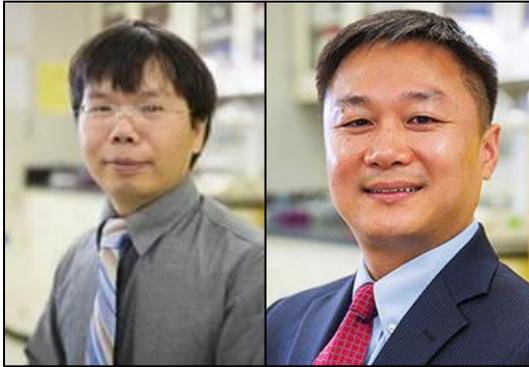
**“Light therapy device for the prevention of reperfusion injury in heart disease”**



Heart disease remains a prevalent cause of death worldwide. In certain coronary heart diseases, patients may develop ST-elevation myocardial infarction (“STEMI”). Patients with STEMI are at a greater risk for developing life-threatening arrhythmias. Myocardial reperfusion and other endovascular therapies can be used to treat STEMI. This process of restoring coronary blood flow can, however, result in so-called reperfusion injury to the underlying myocardial tissues. Currently, there are no fully agreed upon effective clinical therapies for conditioning myocardial tissues to prevent or otherwise reduce reperfusion injury from occurring. To limit these reperfusion injuries, Dr. Nicole Lohr and Dr. Michael Salinger have invented a patent-pending device that applies far red and near infrared light to tissues. This novel device also has potential applications in cerebral infarct/traumatic brain injury, kidney reperfusion injury and in limb salvage and wound healing.

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**Xingkang Huang, Ph.D.**  
Staff Scientist, The University of Chicago

**Junhong Chen, Ph.D.**  
Crown Family Professor of Molecular Engineering,  
The University of Chicago

### **“Water filtration system for heavy metal ions with zero wastewater”**

Heavy metal contamination in drinking or potable water is a major concern for human health due to its toxic nature. Many techniques are available in the market that can be effectively used to remove heavy metal ions from the water. These methods not only remove unwanted metal ions like Cu, Pb, Cd etc., but also end up removing healthy metal ions (such as  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ) in the process. Our water filtration system based on capacitive deionization (CDI) selectively removes lead ( $\text{Pb}^{2+}$ ) from tap water in a single pass mode with zero wastewater emission. CDI offers many advantages over other water-purifying techniques (e.g., reverse osmosis, RO) such as low life-cycle cost, high water recovery rate and low energy consumption. Custom made electrodes allow minimal removal of associated healthy ions leaving water safe and healthy for consumption from every tap.

**Paige E. Peters, M.S, Ph.D. (Candidate)**  
Water Quality Center  
Dept' of Civil, Construction, & Environmental Engineering, MU



### **“Rapid Radicals Technology: Advanced wastewater treatment for elimination of sewer overflows and basement backups”**

22 billion gallons of untreated sewage were discharged into the Great Lakes in 2014 due to combined and sanitary sewer overflows, threatening an already vulnerable ecosystem which drives a \$6 trillion economy. Over 700 cities in the United States and thousands more across the world have combined sewers, meaning both stormwater and sanitary wastewater are conveyed in the same pipe, where high-intensity rain events can result in sewer overflows or residential and commercial basement backups. While conventional wastewater treatment requires 8-14 hours to meet discharge permit requirements, the Rapid Radicals system works in 35 minutes to rapidly remove solids and organics and achieve complete disinfection of harmful pathogens. Our innovative, end-of-pipe solution can be located at a wastewater treatment plant to handle overburden, at sewer outfall locations for remote treatment, or as a mobile unit for emergency response. Rapid Radicals determines the most vulnerable outfall locations within a watershed to implement the system which can be operational in under 10 minutes to prevent sewer overflows and basement backups. Rapid Radicals has completed three rounds of customer discovery, most notably through the National Science Foundation's I-Corps program and was awarded an NSF Small Business Innovation Research grant to further develop our pilot technology down the path to commercialization.

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### Responder Panel



**MODERATOR: Tom Still.** Tom Still is president of the Wisconsin Technology Council. The Tech Council is the non-profit, bipartisan science and technology policy advisory board to the governor and the Legislature. Its programs include the Tech Council Investor Networks, the Tech Council Innovation Network, the Governor’s Business Plan Contest, and regular events that connect entrepreneurs, investors, researchers, and others with a stake in the tech-based economy. Still serves on the UW System Business Council, the Badger Fund of Funds Limited Partners Advisory Committee and advisory groups for the UW-Madison College of Engineering, the UW-Madison Department of Computer Sciences and the WiSys Technology Foundation, among other civic and business groups. He is the former associate editor of the Wisconsin State Journal in Madison. Still writes a syndicated column that appears regularly in more than two-dozen publications. Still moderated the Wisconsin Economic Summits (2000-2003) and helped write the Wisconsin Prosperity Strategy in 2010. Still is the co-author of “Hands-On Environmentalism,” published by Encounter Books, New York. He was a 2008 winner of Madison Magazine’s “Best of Madison Business” award and was named to InBusiness magazine’s 2010 Executive Hall of Fame. Still was named “Communicator of the Year” by the Public Relations Society of America/Wisconsin in 2012. Still is a senior lecturer in the Department of Life Sciences Communication in the UW-Madison College of Agricultural and Life Sciences.

**PANELIST: Scott Button,** Managing Director, Venture Investors, LLC

Scott is a Managing Director at Venture Investors, a leading provider of seed and early stage life sciences venture capital in the Midwest with over \$300M under management. Scott has over 25 years of industry experience and focuses on investments in medical devices, diagnostics, and digital healthcare.

Scott currently represents Venture Investors on the Board of Directors for EnsoData, Eximis Surgical, HealthMyne, Silatronix, and Elucent Medical. He is very involved in supporting student and faculty entrepreneurship at the University of Wisconsin - Madison through campus activities and mentorship. These activities include serving on UW Health’s Innovation Program “Isthmus Project” Board of Directors and the Chemistry Department’s Board of Advisors, as well as being a frequent lecturer at the Business and Engineering Schools. He also is a member of the Commercial Advisory Committee for the Madison Development Corporation, which makes venture debt investments in local start-ups, and is an advisor for the University of Minnesota’s Discovery Capital Program.



Scott has a Bachelor of Science degree in Mechanical Engineering from the University of Wisconsin-Madison and a Master of Business Administration degree from the University of Chicago.

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**PANELIST: John Lewis**, Executive VP of Strategy & Development, Direct Supply

John Lewis is the Executive Vice President of Strategy and Development at Direct Supply, Inc. Direct Supply is the nation's largest provider of products, technology platforms and solutions to the post-acute healthcare industry and its mission is to *Improve the Lives of America's Seniors*. The company serves over 40,000 skilled nursing, assisted living and independent living facilities across the country. John leads the Innovation group at Direct Supply that includes the Innovation and Technology Center located on the campus of MSOE, which is America's leading innovation center focused on senior living. His teams have met with and reviewed over 2000 start-ups to identify transformative technology and solutions that have the potential to successfully impact post-acute settings that serve seniors. The team currently works closely with approximately 25 companies refining solutions and building business models to position them for success in the industry. Prior to his current role, John spent 13 years as the company's Chief Financial Officer and Treasurer. During this time, he also led Risk Management, Crisis Management, Innovation and spent significant time on corporate strategy. Before Direct Supply, John spent over 15 years in finance roles including 8 years at GE's \$18 Billion Healthcare business where he held positions as Global Treasurer, finance leader for the MRI business, Finance & Risk leader for US Healthcare Financial Services and finance leader for its integrated component manufacturing and engineering organization. Other experience has been in banking, mutual funds, and manufacturing. John has a B.A. in Psychology from Boston College and an MBA in Finance and Operations Management from The University of Chicago Booth School of Business.

**PANELIST: Dana Guthrie**, Managing Partner, Gateway Capital Partners

Dana Guthrie is Managing Partner at Gateway Capital. Prior to her current role, Guthrie founded and managed Alchemy Angel Investors, an angel investment network focused on early-stage startups. She founded Alchemy Angel Investors while being employed full-time at a Fortune 500 company and managing a multi-million-dollar, global product offering.

Guthrie is a two-time patent recipient, holds a B.S. in Computer Engineering from Milwaukee School of Engineering, and a M.S. in Energy Engineering from University of Illinois at Chicago.

