

Lehigh Bioengineering Seminar Series presents:

Dr. Margot S. Damaser, PhD

Professor of Biomedical Engineering

Cleveland Clinic Lerner College of Medicine

Lerner Research and Glickman Urological & Kidney Institutes

Cleveland Clinic, Cleveland, OH USA

and

Senior Research Career Scientist

Deputy Director, Advanced Platform Technology Center

Louis Stokes Cleveland Department of Veterans Affairs Medical Center Cleveland, OH USA

“Innovations in Wireless Catheter-Free Ambulatory Monitoring of Bladder Function”



Friday, November 7, 2025

10:45 AM-11:45 AM

HST L185

<https://lehigh.zoom.us/j/93403799433>

Please contact the Bioengineering Department (inbioe@lehigh.edu) with any questions or comments.

Lehigh Bioengineering Seminar Series presents:

Dr. Margot S. Damaser, PhD

Professor of Biomedical Engineering

Cleveland Clinic Lerner College of Medicine

Lerner Research and Glickman Urological & Kidney Institutes

Cleveland Clinic, Cleveland, OH USA

and

Senior Research Career Scientist

Deputy Director, Advanced Platform Technology Center

Louis Stokes Cleveland Department of Veterans Affairs Medical Center Cleveland, OH USA

“Innovations in Wireless Catheter-Free Ambulatory Monitoring of Bladder Function”

Abstract:

Urodynamics is the gold standard diagnostic test to assess lower urinary tract function and dysfunction. However, it has pitfalls because it is a non-physiologic test performed in an artificial setting and often is unable to replicate the symptoms that concern patients. To address the limitations of Urodynamics and provide for chronic monitoring of bladder function, we have developed a wireless catheter-free device for measurement of bladder function without catheters or retrograde filling. We designed flexible electronics to wirelessly transmit bladder pressure to a small radio receiver taped to the subject's abdomen. The radio receiver stores the data and simultaneously transmits it wirelessly to a nearby laptop using Bluetooth. We have tested this system on the bench, in animals, and in human subject studies. This is the first example of a wireless catheter free bladder pressure data collection in humans, enabling people to void on a toilet in private while diagnostic data is collected. These systems enable chronic monitoring for closed-loop neuromodulation, sensory restoration, close titration of pharmaceutical treatments, as well as biofeedback. Recent results, clinical applications, and future directions will be discussed in the presentation.

Personal Bio:

Dr Margot Damaser earned her PhD in Bioengineering from the University of California, Berkeley & San Francisco joint program in Bioengineering. She then completed 2 postdoctoral fellowships at the University of Lund in Sweden and at the University of Pennsylvania in Philadelphia, PA USA. For over 25 years, she has led a research lab conducting research on the causes of and treatments for pelvic floor disorders, including stress urinary incontinence, pelvic organ prolapse, and fecal incontinence. Dr. Damaser and her

Please contact the Bioengineering Department (inbioe@lehigh.edu) with any questions or comments.



Department of Bioengineering
Sinclair Lab
7 Asa Drive, Suite 205
Bethlehem, PA 18015 USA
Office: (610) 758-4091
Web: engineering.lehigh.edu/bioe

team have developed several novel wireless catheter-free devices for improved diagnosis and treatment of incontinence. She has also developed and used animal models to test novel therapeutics with a focus on applying techniques from regenerative medicine to pelvic floor disorders.

As a highly regarded as an international expert on urodynamics, models for studying female pelvic floor disorders, and new technologies in female urology and pelvic floor disorders, Dr. Damaser has mentored many graduate students, postdocs, surgical residents and fellows in these research areas. Dr. Damaser has over 200 peer-reviewed publications and is an inventor on 10 issued US Patents and 4 pending Patent applications. The majority of these have been licensed for commercialization. Dr. Damaser has had continuous research funding from VA and NIH for over 20 years in addition to collaborative research grants from private foundations and several companies. She currently manages over \$10M in research funding as PI or co-PI. She is currently Deputy Director and co-PI of the Advanced Platform Technology Center at the Cleveland VA Medical Center and is a co-PI of the Cleveland Columbus Institutional Network to Promote Training in Kidney, Urology, and Hematology Research.

Dr. Damaser has won multiple awards for innovative science, her scientific writing, and her outstanding mentoring. In 2004, Dr. Damaser received the Presidential Early Career Award for Scientists and Engineers, awarded to her for outstanding research on the human urinary bladder using mathematical modelling along with physiological and neurological studies. In 2012 Dr. Damaser was awarded the American Medical Women's Association Gender Equity Award by the Case Western Reserve School of Medicine. In 2014 she was elected by her colleagues to the American Institute for Medical and Biological Engineering (AIMBE) College of Fellows, representing the top 2% of medical and biological engineers. More recently, in 2022, Dr. Damaser was awarded the prestigious Society of Women in Urology (SWIU) – Society of Basic Science Research (SBUR) Award for Excellence in Urologic Research. Dr. Damaser was also recently inducted as a Senior Member of the National Academy of Inventors in Washington, DC.

Please contact the Bioengineering Department (inbioe@lehigh.edu) with any questions or comments.