



Medical Physics
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Emerging Leaders

Symposium & Workshop | 2022

Science Symposium, Diversity, Mentoring & Visioning Workshops

Thank you for attending the inaugural Emerging Leaders Symposium and Workshop of academic medical physics! The symposium and workshop aims to bring together scholarly-focused, early-career, diverse scientists with visionary leaders and mentors - all of whom are interested in shaping the future of academic medical physics.

The event includes a public science symposium of presentations from invited speakers and emerging leaders, and medical physics graduate students from the University of Wisconsin-Madison, as well as discussion panels, followed by task specific workshops to support the early career participants with mentoring and networking sessions.

Participants will advance a national network of junior and senior investigators who are shaping academic medical physics, providing intentional support for those who have a bold, inclusive vision of the future inventions and discoveries in this field. The participating emerging leaders will leave with an individual introduction to leadership in the science of medical physics, a broader self-determined mentor network, and increased potential to find and shape their own academic agenda. Emerging leader participants have qualified for travel support to attend and present their work in the field, as chosen through competitive review by the organizing committee.

All participants will be interacting with the invited speakers, extended faculty, researchers and graduate students of the University of Wisconsin-Madison Department of Medical Physics, as well as the Board of Visitors of the Department of Medical Physics.

Madison, WI: The ultimate college town

This is where big-city opportunities meet small-town conveniences. Where vibrant streetscapes lead to lakeside retreats. Where a Big Ten college and capital city blend together, creating an atmosphere unlike anywhere else. Welcome to Madison.



Madison, WI Best Places to Live in the U.S. 2022 – ranked #1

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UW-Madison Department of Medical Physics

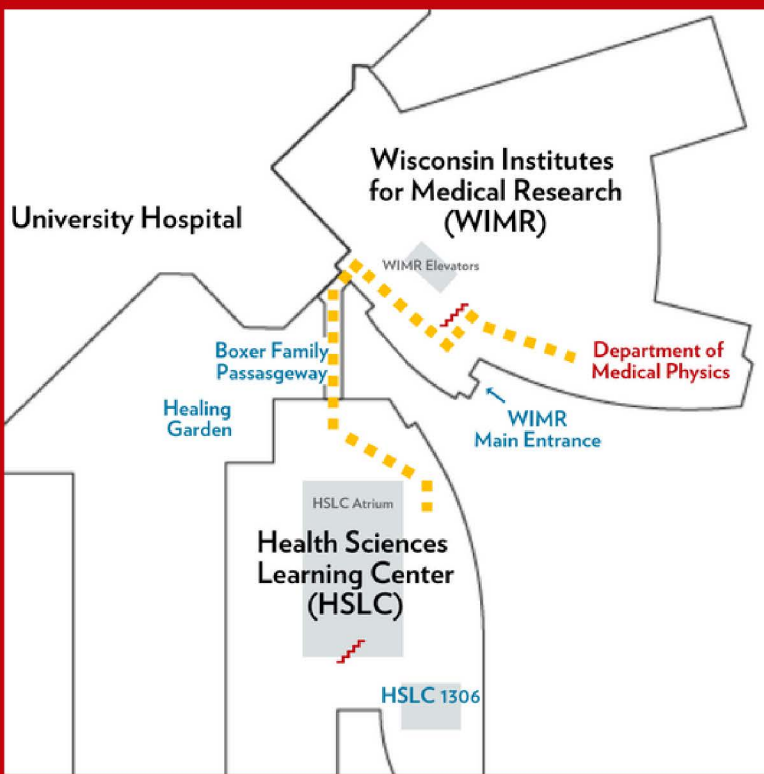
Symposium Organizing Committee:

Brian Pogue, Carri Glide-Hurst, Beth Meyerand, Wally Block, Robert Jeraj, Wes Culberson, Reinier Hernandez, Marina Emborg, Diego Hernando, Michael Speidel, Paul Campagnola, Oliver Wieben, Kevin Eliceiri, Carol Aspinwall, Joya Davidson, Heather Esser, Alyssa Mohr, Mary Pierce, Kristina Weaver, Sheena Chu, Haley Whitson, Jayse Weaver.

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CAMPUS WI-FI

Wireless Internet Options on the UW-Madison Campus

1. Open the Wi-Fi options for your device and select "UWNet." Open a browser (Firefox, Chrome, etc.). You should be directed to a login page.

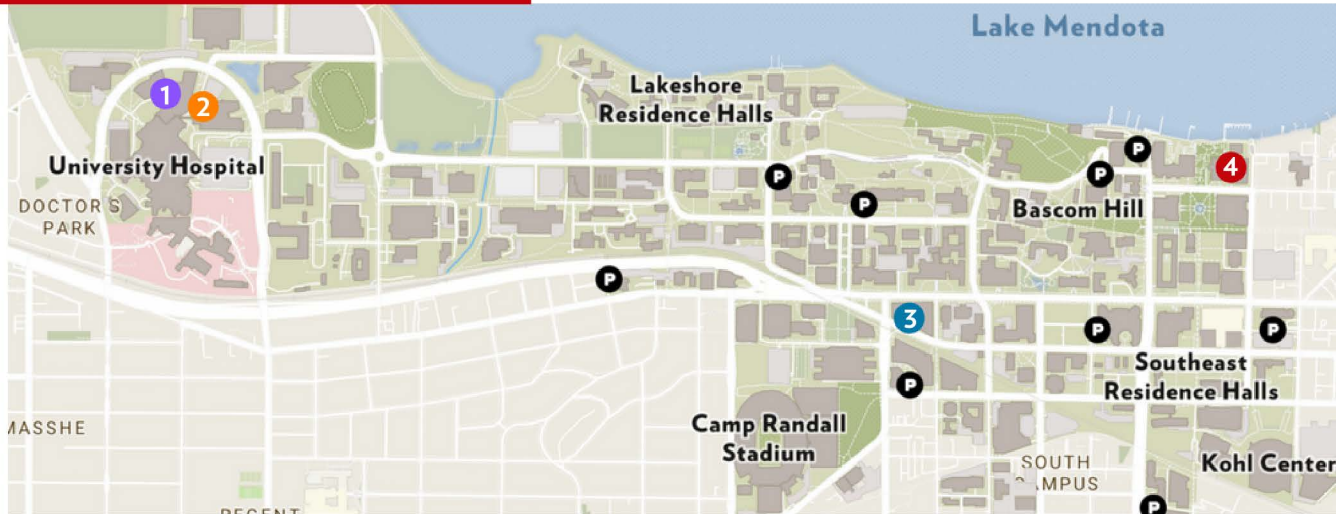
On this login page, you will see two boxes: "NetID" and "Password." Under these boxes is a small link that says "Create a Guest Account." Click this link. It should redirect you to a page that asks you for an email address.

2. Fill out the required fields and click "Create a Guest Account." You will then be directed to a page that shows your information. Click the "Log in" button at the bottom of the page.
- 3.

If you have any problems logging in, you may contact the DoIT Help Desk at 608-264-HELP (4357) or help@doit.wisc.edu

WISCONSIN *Welcome*

- 1 Wisconsin Institutes for Medical Research (WIMR)
1111 Highland Avenue
- 2 Health Sciences Learning Center (HSLC)
750 Highland Avenue
- 3 Wisconsin Institute for Discovery (WID)
330 North Orchard Street
- 4 Pyle Center
702 Langdon Street



WEDNESDAY, AUGUST 31, 2022

8:15 **WELCOME – Brian Pogue**
HSLC, Room 1306

8:30 **TECHNOLOGY INNOVATIONS – Moderator: Carri Glide-Hurst**

Creating Value Through Medical Physics
Sasa Matic, Varian Medical Systems

9:00 *Developments of technologies for FLASH radiotherapy*
Magdalena Bazalova-Carter, University of Victoria

9:30 *The Future of Functional and Structural Ultrasound imaging*
Marvin Doyle, University of Rochester

10:00 **INVITED PARTICIPANT PRESENTATIONS – Moderator: Michael Speidel**

Patient-specific tumor and kidney dosimetry of ¹⁷⁷Lu-PSMA-617 in mCRPC patients
Caffi Meyer, Oregon Health & Science University

Virtual imaging trials: a framework to assess and optimize imaging technologies towards robust disease quantifications
Ehsan Abadi, Duke University

Advancements in Medical Physics for Improving Personalized Oncology
Ibrahim Chamseddine, Harvard Medical School

Medical Physics Quality Assurance and Management Practices in a Low-Middle Income Country (LMIC): An On-site Visit and Audit
Afua York, University of Washington

10:45 **BREAK**

11:15 **DATA SCIENCE & INFORMATION TECHNOLOGY – Moderator: Diego Hernando**

Computer-Aided Decision Making in Medical Diagnosis and Therapy - The Need for Academic Domain-Expert Medical Physicists
Maryellen Giger, University of Chicago

11:45 *Re-wiring Academic Medicine for Integrated Computation and Prediction*
David Jaffray, MD Anderson Cancer Center

12:15 **INVITED PARTICIPANT PRESENTATIONS – Moderator: Wesley Culberson**

Machine Learning for Background Parenchymal Enhancement from Breast DCE-MRI
Lindsay Douglas, University of Chicago

Toward point-of-care 3D ultrasound systems for screening breast cancer
Claire Park, Western University

Expert Augmented Machine Learning
Gilmer Valdes, University of California San Francisco

Big data for small children: Image-based data mining reveals correlations between radiation dose and cognitive effects in childhood cancer survivors
Lydia Wilson, St. Jude Children's Research Hospital

12:45 **LUNCH** (with Keynote Speaker)
HSLC – ILC 2nd Floor

1:15 **KEYNOTE LUNCH SPEAKER – Moderator: Brian Pogue**

NIBIB and the Pandemic Response: New Opportunities for Accelerating Innovation from In Vitro Diagnostics to Medical Imaging
Bruce Tromberg, Director, National Institutes of Biomedical Imaging & Bioengineering.

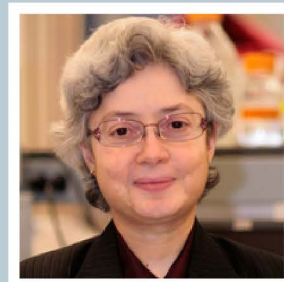
MEET THE SPEAKERS

Magdalena Bazalova-Carter
Canada Research Chair,
Medical Physics
University of Victoria, Canada



X-Ray Imaging & Therapy

Zaver Bhujwala
Director, Division of Cancer
Imaging Research
Johns Hopkins University



Molecular Imaging

Marvin Doyle
Chair, Electrical
Computer Engineering
University of Rochester



Ultrasound & Elastography

Maryellen Giger
Professor, Radiology
University of Chicago



Artificial Intelligence

Tayyaba Hasan
Professor, Health
Sciences & Technology
Harvard-MIT



Molecular & Immune
Therapies

2:15 **INVITED PARTICIPANT PRESENTATIONS** – Moderator: **Haley Whitson**

Proton specific challenges of online plan adaption
Lena Nenoff, Harvard Medical School

Pair production tomography imaging
Qihui Lyu, University of California Los Angeles

Evolutionary modeling optimization & in-silico combining molecular targeted therapies with radiotherapy for hampering acquired drug resistance
David (Bo) McClatchy, Harvard Medical School

Image-Guided Radiotherapy and Immunotherapy Strategies for Cancer
Matthew Scarpelli, Purdue University

3:00 **MOLECULAR IMAGING & THERAPY** – Moderator: **Robert Jeraj**

Molecular Imaging & Theranostics in Academic Medical Physics
Zaver Bhujwalla, Johns Hopkins University

Envisioning a Career in Molecular Therapies of the Future
Tayyaba Hasan, Harvard Medical School, Massachusetts General Hospital

4:00 **INVITED PARTICIPANT PRESENTATIONS** – Moderator: **Reinier Hernandez**

Hippocampal Multimodal MRI after Severe TBI
Jose Guerrero Gonzalez, University of Wisconsin-Madison

Polarization imaging to enable accurate Cherenkov-based dose measurements
Emily Cloutier, Université Laval

FLASH vs conventional radiotherapy long-term toxic effects driven by early microvascular response
Valentin Demidov, Dartmouth College

Single-Pixel Hyperspectral Macroscopic Fluorescence Lifetime Imaging Unmixed with Deep Learning
Marien Ochoa, Rensselaer Polytech Institute

4:45 **END OF DAY**

6:00 **RECEPTION & POSTER PRESENTATIONS**
Wisconsin Institutes for Discovery (WID) – 330 N Orchard Street

Hors D'oeuvres & Drinks – Poster Discussions & Awards



David Jaffray
Chief Tech & Digital Officer
MD Anderson Cancer Center

Information Technology



Thomas Rock Mackie
Professor Emeritus
University of Wisconsin-Madison

Entrepreneurial Leadership



Beth Meyerand
Vice Provost for
Faculty & Staff Affairs
University of Wisconsin-Madison

Medical Physics & Academic
Leadership



Sasa Mutic
Senior Vice President,
Radiation Treatment
Varian Medical Systems

Industry Leadership



Bruce Tromberg
Director, Biomedical Imaging
& Bioengineering
National Institutes of Health



THURSDAY, SEPTEMBER 1, 2022

- 8:30 **WELCOME & WORKSHOP INTRODUCTIONS** – Brian Pogue & Tom Grist
HSLC, Room 1306
- 8:45 **PANEL: HAVING IMPACT IN MEDICAL IMAGING & THERAPY** - Moderator: **Robert Jeraj**
Magdalena Bazalova-Carter, Department of Physics & Astrology, University of Victoria
David Jaffray, Radiation Physics, MD Anderson Cancer Center
Ryan Flynn, Department of Radiation Oncology, University of Iowa
Zaver Bhujwala, Department of Radiology, Johns Hopkins University
Marina Emborg, Department of Medical Physics, University of Wisconsin-Madison
Tom Grist, Department of Radiology, University of Wisconsin-Madison
- 10:15 **BREAK** (Group Photo)
- 10:45 **KEYNOTE PRESENTATION** - Moderator: **Wally Block**
Academic Leadership and Medical Physics
Beth Meyerand, University of Wisconsin-Madison
- 11:15 **PANEL: ACADEMICS, DIVERSITY & MENTORING** - Moderator: **Wally Block**
Naomi Takahaski, University of Wisconsin-Madison, UW Health
Marvin Doyle, Department of Electrical Computer Engineering, University of Rochester
Tayyaba Hasan, Department of Health Sciences & Technology, Harvard Medical School
Maryellen Giger, Department of Radiology, University of Chicago
Paul Campagnola, Department of Biomedical Engineering, University of Wisconsin-Madison
- 12:30 **LUNCH** (Optional Tours of WIMR Research Spaces)
HSLC Atrium
- 1:45 **KEYNOTE PRESENTATION** - Moderator: **Kevin Eliceiri**
Academia & Industry Translation & Relationships
Rock Mackie, University of Wisconsin-Madison
- 2:15 **PANEL: ACADEMIC, INDUSTRY & VENTURE SYNERGIES** - Moderator: **Kevin Eliceiri**
Rock Mackie, University of Wisconsin-Madison
Sasa Mutic, Varian Medical Systems
Thomas Foo, GE Global Research
Michelle Svatos, Palette Life Sciences
Kevin Royalty, Global Strategic Marketing; Johnson & Johnson
Stephanie Whitehorse, Wisconsin Alumni Research Foundation
- 3:30 **BREAK**
- 3:45 **EMERGING LEADERS NETWORK & MENTOR BUILDING** (Private - WIMR Conference Rooms)
BOARD OF VISITORS MEETING (Private - Pyle Center, Room 320)
- 6:00 **RECEPTION**
Pyle Center Rooftop - 702 Langdon Street



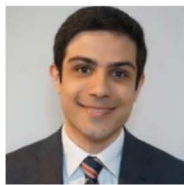
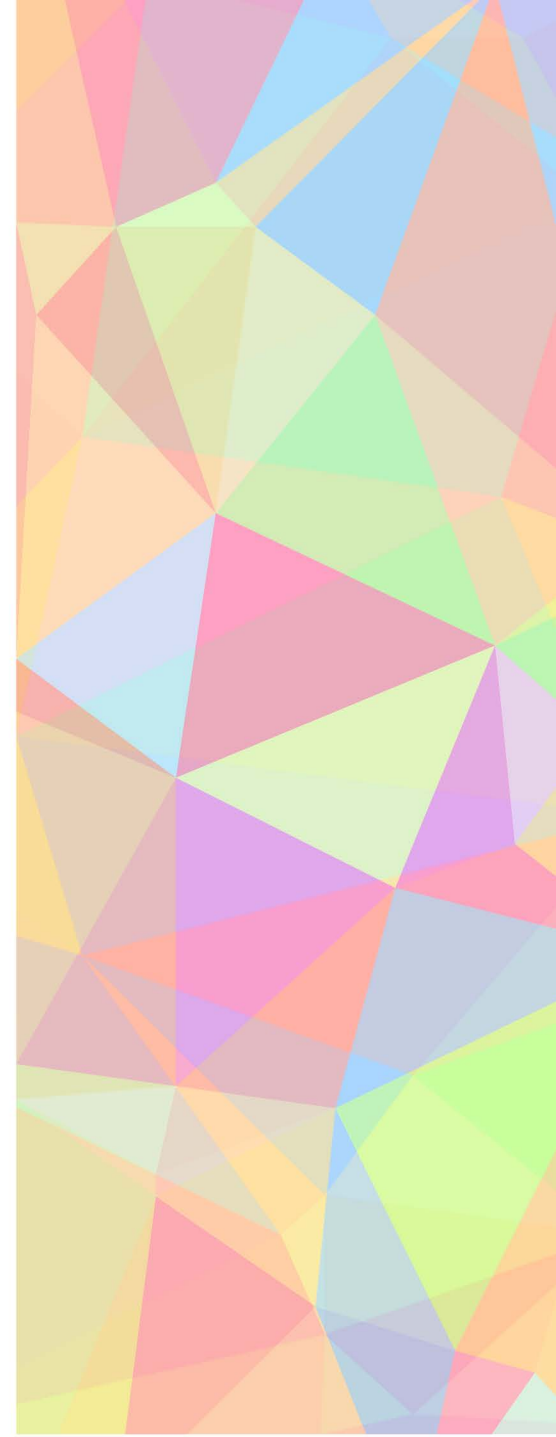
Prospective students attended the graduate program open house, in-person event this past March 2022 to learn more about the graduate program and opportunities on the UW campus.



The Department of Medical Physics is excited to welcome its newest graduate students, beginning in fall 2022, to the UW campus! This incoming class is the largest cohort of incoming students that the department has ever had - 25 students in total, with 16 being women! Students are joining us from across the nation and worldwide to begin their careers as the next medical physicists.

We are proud to continue to be leaders in the field of medical physics and attracting a diverse student population.

MEET THE EMERGING LEADERS



Ehsan Abadi
Duke University



Ibrahim Chamseddine
Harvard Medical School



Emily Cloutier
Universite Laval



Valentin Demidov
Dartmouth College



Lindsay Douglas
University of Chicago



Jose Guerrero Gonzalez
University of Wisconsin-Madison



Qihui Lyu
University of California
Los Angeles



David (Bo) McClatchy
Harvard Medical School



Caffi Meyer
Oregon Health & Science University



Lena Nenoff
Harvard Medical School



Marien Ochoa
Rensselaer Polytechnic Institute



Claire Park
Western University



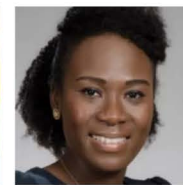
Matthew Scarpelli
Purdue University



Lydia Wilson
St. Jude Children's Research Hospital



Gilmer Valdes
University of California
San Francisco



Afua Yorke
University of Washington

#1

Largest medical physics graduate program in North America

97 Currently enrolled graduate students

34 Faculty in medical physics

36 Active affiliate faculty

#WiscMedPhys

POINTS OF

PRIDE

\$8 Million

Annually in extramural grants & contracts

488

master's degrees completed

308

doctorate degrees completed

#1

Most recipients of the American Association of Physicists in Medicine (AAPM) William D. Coolidge Award

STUDENT INVOLVEMENT

- > Women in Medical Physics program
- > Recognizing Equity, Diversity & Inclusion in Medical Physics (REDI-MP) program
- > Student Community Outreach committee

WELCOME TO OUR BOARD OF VISITORS



Paul DeLuca, Ryan Flynn, Tom Foo, Steven Goetsch, Michael Harsh, Jeff Kapatoes, Dee Khuntia, Andy Kirkpatrick, Rock Mackie, Greg Piefer, Kevin Royalty, Michael Schell, Michelle Svatos, Oliver Wieben.

The Department of Medical Physics Board of Visitors serve as ambassadors and advocates for the department, assisting with philanthropy, recruitment of high quality graduate students, and advising the department on the impact of new research endeavors. The board meets annually and is comprised of physicists with a broad array of experience and perspectives.



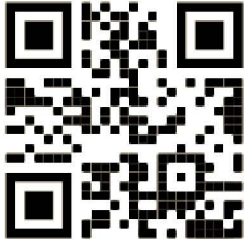
Medical Physics
UNIVERSITY OF WISCONSIN
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WE ARE HIRING!

ASSISTANT OR ASSOCIATE PROFESSOR
DEPT. OF MEDICAL PHYSICS

For full position & application details:

HI THERE!
WELCOME TO MADISON!



680,796
POPULATION OF
GREATER MADISON

270 PARKS

6,000 acres of parkland and over
200 miles of off-road paths and trails



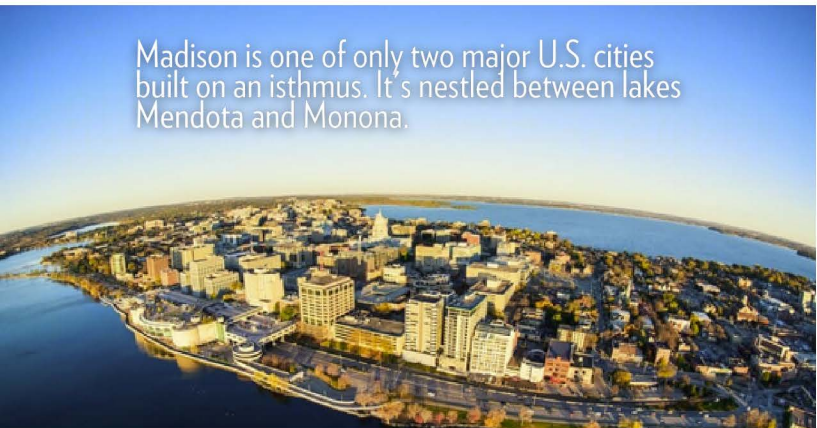
Home to the largest producer-only farmers' market in the country

13
PUBLIC BEACHES

Madison's official bird is the plastic pink flamingo, a homage to an infamous 1979 prank where students filled Bascom Hill with 1,008 of the birds overnight



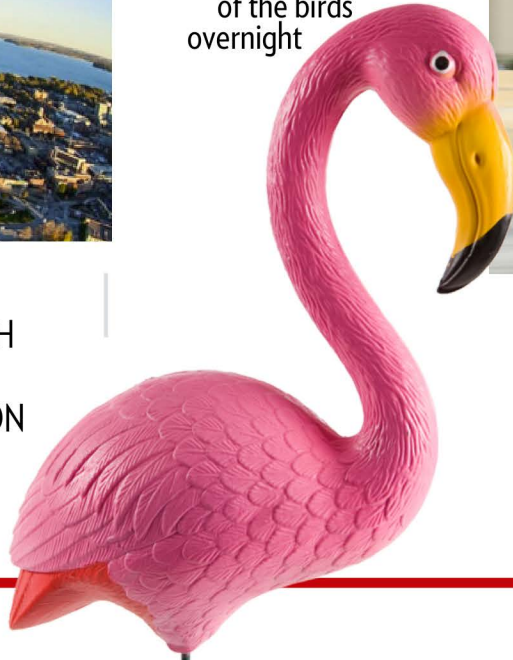
Thousands of Native American effigy mounds, the biggest concentration in the U.S., were built along the shores of Madison's lakes. Today, 23 preserved mounds remain on public land in Dane County



Madison is one of only two major U.S. cities built on an isthmus. It's nestled between lakes Mendota and Monona.



16 OFF-LEASH
DOG PARKS IN
GREATER MADISON



#1
BEST CITY
IN THE COUNTRY
FOR BIKING



WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

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