Symposium on Photonics Science and Technology
2019 Fitzpatrick Institute for Photonics (FIP) Annual Meeting

March 11-12, 2019, Duke University

ADVANCE PROGRAM AGENDA

Monday, March 11, 2019 (Fitzpatrick Center) – Morning Session

8:30-9:00 am  Registration

9:00-9:05  Introduction
Tuan Vo-Dinh, Director of the Fitzpatrick Institute for Photonics, R. Eugene and Susie E. Goodson Professor of Biomedical Engineering and Professor of Chemistry, Duke University

9:05-9:15  Opening Welcome Address
Sally Kornbluth, Provost and Jo Rae Wright University Professor, Duke University

9:15-9:25  Ravi Bellamkonda, Vinik Dean, Pratt School of Engineering, Duke University

9:25-10:05  Symposium Keynote
“Invention of High Efficient blue LED and Future Solid State Lighting”
Shuji Nakamura, 2014 Nobel Laureate in Physics
CREE Distinguished Professor Materials Department
University of California, Santa Barbara

10:15-10:35  COFFEE BREAK

10:35-11:10  Plenary Lecture
“Nanoelectronic Tools for Brain Science”
Charles M. Lieber
Joshua & Beth Friedman University Professor
Department of Chemistry & Chemical Biology
Harvard University
11:10-12:00  Session 1: Special Topic – Materials & Photonics: Advancing The World

Chair: David N. Beratan, R.J. Reynolds Professor of Chemistry, Departments of Chemistry, Biochemistry & Physics, Duke University

11:10- 11:40  Invited Lecture
“Design Of Histone-Mimic Nanoparticles For Gene Delivery Using Molecular Modeling”
Yaroslava Yingling, Professor and University Faculty Scholar, Department of Materials Science and Engineering North Carolina State University

11:40- 12:00  “Engineering materials to unlock the regenerative capacity of tissues”
Tatiana Segura, Professor
Department of Biomedical Engineering
Duke University

12:00-1:30 pm  LUNCH BREAK (Lunch provided)

Poster Session  (No presenters at this time)
Posters are on display in the Atrium area of the Fitzpatrick Center

Monday, March 11, 2019 (Fitzpatrick Center) - Afternoon Session

1:30-2:05 pm  Plenary Lecture
“Photonics Nanomaterials in Oncology”
Ulrich B. Wiesner
Spencer T. Olin Professor of Engineering
Department of Materials Science of Engineering
Cornell University

2:05-3:15  Session 2: Special Topic – Materials & Photonics: Advancing The World
Chair: Adam Wax, Professor, Department of Biomedical Engineering, Duke University

2:05-2:35  Invited Lecture
“Colorful Organic Solar Cells Employing Förster Resonance Energy Transfer”
Andre Taylor, Associate Professor
Department of Chemical and Biomolecular Engineering
Tandon School of Engineering
New York University
2:35-2:55  “Biomaterial Enabled Translational Regenerative Medicine”  
Shyni Varghese, Professor  
Departments of Biomedical Engineering, Mechanical Engineering and Materials Science, and Orthopaedic Surgery, Duke University

2:55-3:15  “Waveguide QED: Catching and Storing a Single Photon”  
Harold U. Baranger, Professor  
Department of Physics, Duke University

3:15-3:30  COFFEE BREAK

3:30-4:30  Session 3:  Advanced Photonic Technologies and Systems I  
Chair: Jie Liu, George Barth Geller Professor of Chemistry, Department of Chemistry, Duke University

3:30-3:50  “Laser Interstitial Thermal Therapy (LITT) for Intracranial Lesions”  
Peter Fecci, Assistant Professor of Neurosurgery, Associate Deputy Director of the Preston Robert Tisch Brain Tumor Center, Co-Director of the Center for Brain Metastasis, Department of Neurosurgery, Duke School of Medicine

3:50-4:10  “Molecular double slit experiments”  
David N. Beratan, R.J. Reynolds Professor of Chemistry  
Departments of Chemistry, Biochemistry and Physics, Duke University

4:10-4:30  “Low-cost, Portable Optical Coherence Tomography for Point of Care Use”  
Adam Wax, Professor  
Department of Biomedical Engineering, Duke University

4:30-6:00  POSTER SESSION & RECEPTION  
Presenters will be at posters from 4:30-5:00pm  
Posters are exhibited in the Atrium area of the Fitzpatrick Center
FIP SYMPOSIUM COCKTAIL RECEPTION
in the Atrium area of the Fitzpatrick Center
(Heavy hors d’oeuvres will be served)

Tuesday, March 12 (Fitzpatrick Center) – Special Morning Session & Panel

10:00- 12:00pm  Session 4: Special Session on Advancing the World Through Global Health Students

SESSION CO-SPONSORED BY
Engineering World Health (EWH),
Global Public Service Academies (GPSA),
The Office of the Vice-Provost & The Fitzpatrick Institute for Photonics

Program Committee Chair:
Robert Malkin, Professor of the Practice, Biomedical Engineering and Global Health and Director, Global Public Service Academies (GPSA), Duke University

10:00-11:00  Panel Discussion on Global Health STEM Outreach

Moderator: Brittany Ploss, Project Manager, Duke Center Center for Applied Genomics and Precision Medicine, Assistant Director, GPSA, Duke University

Panel Members
Robert Malkin, Professor of the Practice, Biomedical Engineering and Global Health and Director, GPSA, Duke Engineering
Leslie J. Calman, CEO, Engineering World Health (EWH)
Tamara Fitzgerald, Assistant Professor of Surgery, Assistant Research Professor of Global Health, Duke School of Medicine

12:00-1:30pm  Poster Session - Duke Engineering World Health, Global Public Service Academies
Participation from invited students across GPSA & EWH
12:00-1:30 pm  **LUNCH BREAK** (Lunch provided)

**Poster session for Duke Engineering World Health**
Posters are exhibited in the Atrium area of the Fitzpatrick Center

**Tuesday, March 12 (Fitzpatrick Center) -  Afternoon Session**

1:30-3:00pm  **Session 5: Special Topic – Materials & Photonics: Advancing The World**
Chair: Natalia Litchinitser, Professor, Department of Electrical and Computer Engineering, Duke University

1:30-2:00  **Invited Lecture**
“Dye-Sensitization Of Semiconductor Nanocrystallites For Solar Energy Conversion”
Gerald J. Meyer, Professor
Department of Chemistry
University of North Carolina at Chapel Hill

2:00-2:20  “Plasmonic Catalysis: Heating vs. Hot Electrons”
Jie Liu, George Barth Geller Professor of Chemistry
Department of Chemistry, Duke University

2:20-2:40  “Imaging the Cellular Response to Nanoparticles”
Christine K. Payne, Associate Professor
Department of Mechanical Engineering & Materials Science, and Department of Chemistry, Duke University

2:40-3:00  “Polymer-Mediated Assembly of Nanoparticles into Unique, Anisotropic Architectures”
Gaurav Arya, Associate Professor, Department of Mechanical Engineering and Materials Science
Duke University

3:00-3:15  **COFFEE BREAK and FIP POSTER DISPLAY**

3:15-4:55  **Session 6:**  *Advanced Photonic Technologies and Systems II*
Chair: Harold U. Baranger, Professor
Department of Physics, Duke University

3:15-3:25  **Poster Award Winners Announced**
3:25-3:55 Invited Lecture
“Phonon coherences reveal the polaronic character of excitons in two-dimensional lead halide perovskites”
Carlos Silva, Professor, School of Chemistry and Biochemistry, School of Physics, Georgia Institute of Technology

3:55-4:15 “Linear and Nonlinear Light-Matter Interactions in Engineered Photonic Media”
Natalia Litchinitser, Professor, Department of Electrical and Computer Engineering, Duke University

4:15-4:35 “Imaging freely moving organisms at high resolution using a gigapixel microscope”
Roarke Horstmeyer, Assistant Professor, Department of Biomedical Engineering, Duke University

4:35-4:55 “Photonics for Solar Fuels”
Nico Hotz, Assistant Professor of the Practice, Department of Mechanical Engineering & Materials Science, Duke University

4:55-5:00 pm Closing Remarks

5:00pm SYMPOSIUM ADJOURNS