AGENDA
13TH THE EYE AND THE CHIP
WORLD RESEARCH CONGRESS PROGRAM SCHEDULE

SUNDAY, OCTOBER 8, 2023

(Presentations are 20-minutes long, plus a 10-minute Q & A – Challenge period)

7:00 - 8:00 a.m. **CONTINENTAL BREAKFAST**

7:45 - 7:55 a.m. **WELCOME & INTRODUCTION**
Nauman Imami, M.D., M.H.S.A, Chair, Henry Ford Health, Department of Ophthalmology

7:55 - 8:00 a.m. **HOUSEKEEPING ANNOUNCEMENTS**
David J. Goldman, M.D., M.B.A., Director, Detroit Institute of Ophthalmology

Session One: Modeling
Moderator: Joseph Rizzo, M.D., Harvard Medical School, Boston, Massachusetts

8:00 - 8:30 a.m. **Targeted Multielectrode Stimulation of Retinal Ganglion Cells for Enhancing the Selectivity of Epiretinal Implants**
Praful Vasireddy, B.S., M.Sc., Stanford University, Stanford, California

8:30 – 9:00 a.m. **Selective Activation of Retinal Ganglion Cells in a Biophysical Computational Network Model of the Human Retina**
Keith Ly, M. Eng., University of New South Wales, New South Wales, Australia

9:00 – 9:30 a.m. **Axon Initial Segment Geometry and Its Impact on Focal Stimulation of the Retina**
Paul Werginz, Ph.D**.,** Institute of Biomedical Electronics, Vienna, Austria

9:30 - 10:00 a.m. BREAK

Session Two: Retinal Interface
Moderator: Shelley Fried, M.D., Harvard Medical School, Boston Massachusetts

10:00 - 10:30 a.m. **Making a Better Retinal Array**
James Weiland, Ph.D., University of Michigan, Ann Arbor, Michigan

10:30 - 11:00 a.m. **On Resolution Limits with Photovoltaic Subretinal Prosthesis**
Daniel Palanker, Ph.D., Stanford University, Stanford, California

11:00 - 11:30 a.m. **Nanoparticle-enhanced Infrared Neural Modulation: A Novel Tool for Selective Activation of Retinal Neurons**
Tatiana Kameneva, Ph.D., Swinburne University of Technology, Melbourne, Australia

11:30 - 12:30 p.m. Group Discussion

12:30 - 1:30 p.m. Lunch

Session Three: The Big Picture
Moderator: Eduardo Fernandez, M.D., Ph.D., University Miguel Hernandez, Elche, Spain

1:30 - 2:00 p.m. **Applications of Deep Learning AI to Neural Signal Analysis, Sight Perception, Device Design, and Neural Stimulation Patterning Part II**
Greg Auner, Ph.D., Wayne State University, Detroit, Michigan

2:00 - 2:30 p.m. **Matching Engineering Capabilities with the Needs of the Blind Community in Bionic Vision**
Gregg Suaning, Ph.D., The University of Sydney, Sydney, Australia

2:30 – 3:00 p.m. **Development of an Imageable Retinal Eyecup Recording Chamber**
Ethan Cohen, Ph.D., U.S. Food and Drug Administration, Baltimore, Maryland

3:00 - 3:30 p.m. BREAK

Session Four: The Big Picture continued
Moderator: Daniel Rathbun, Ph.D., Henry Ford Health, Detroit, Michigan

3:30 - 4:00 p.m. **FDA Update for The Eye and The Chip 2023**
Michelle Gabriele Sandrian, Ph.D., U.S. Food and Drug Administration, Silver Spring, Maryland

4:00 – 5:00 p.m. Group Discussion

5:00 – 6:00 p.m. Keynote Address
Topic: TBD
Stelios Smirnakis, M.D., Ph.D., Harvard Medical School, Boston, Massachusetts

6:30 – 9:00 p.m. BARTIMAEUS DINNER – Reservations required
Contact Roseanne Horne - Rhorne1@hfhs.org or 313-936-1968

MONDAY, OCTOBER 9, 2023

(Presentations are 20-minutes long, plus a 10-minute Q & A – Challenge period)

7:00 - 8:00 a.m. **CONTINENTAL BREAKFAST**

7:45 - 7:55 a.m. **WELCOME & INTRODUCTION**
Nauman Imami, M.D., M.H.S.A, Chair, Henry Ford Health, Department of Ophthalmology

7:55 - 8:00 a.m. **HOUSEKEEPING ANNOUNCEMENTS**
David J. Goldman, M.D., M.B.A, Director, HFH Detroit Institute of Ophthalmology

Session Five: Upcoming Devices
Moderators: Daniel Palanker, Ph.D., Stanford University, Stanford, California and
Philip Troyk, Ph.D., Illinois Institute of Technology, Chicago, Illinois

8:00 - 8:30 a.m. **ReVision Implant: Developing a High Resolution Cortical Visual Prosthesis**
Frederick Ceysennes, Ph.D., ReVision Implant, Belgium

8:30 - 9:00 a.m. **The High-Resolution Imaging Retinal Prosthesis (HARP4k) -- Status Update & Surgery Optimization**
Long-Sheng Fan, Ph.D., Iridium Medical Technology, Hsinchu City, Taiwan

9:00 - 9:30 a.m. **2023 Updates of Seoul Artificial Retina Project**
Jong-Mo Seo, M.D., Ph.D., Seoul Artificial Retina Project, Seoul, Korea

9:30- 10:00 a.m. BREAK

Session Six: Upcoming Devices continued
Moderators: Daniel Palanker, Ph.D., Stanford University, Stanford, California and
Philip Troyk, Ph.D., Illinois Institute of Technology, Chicago, Illinois

10:00 -10:30 a.m. **Progress Toward a Bi-directional Epiretinal Implant to Reproduce the Neural Code**
E.J. Chichilnisky, Ph.D., Stanford University, Stanford, California

10:30 – 11:30 a.m. Group Discussion

11:30 – 12:30 p.m. LUNCH

Session Seven: Public Session/Clinical Trials
Moderator: Mohit Shivdasani, Ph.D., University of New South Wales, New South Wales, Australia
Introduction: Daniel Rathbun, Ph.D., Henry Ford Health, Detroit, Michigan

12:30-1:00 p.m. Public Session setup time

1:00 – 1:30 p.m. **The PRIMA Bionic Vision System in Patients with Geographic Atrophy**
Ralf Hornig, Ph.D., Pixium Vision, Paris, France
Mahi Muqit, Ph.D., Moorfields Eye Hospital, London, England

1:30 -2:00 p.m. **An Update on Suprachoroidal Prosthesis Clinical Trials**
Chi Luu, Ph.D., Center for Eye Research Australia, East Melbourne, Australia

2:00- 2:30 p.m. **Orion Visual Cortex Prosthesis System: 5-Year Clinical Trial Results**
Uday Patel, Ph.D., Cortigent, Valencia, California

2:30 -3:00 p.m. **BionicVisionXR: An Open-Source Virtual Reality Toolbox for Bionic Vision**
Michael Beyeler, Ph.D., Bionic-Vision Lab, Santa Barbara, California

3:00- 3:30 p.m. BREAK

Session Eight: Cortical Trials
Moderator: Gislin Dagnelie, Ph.D., ICVP, Baltimore, Maryland

3:30 – 4:00 p.m. **Visual Perceptions Evoked with Intracortical Micro Stimulation of the Human Occipital Cortex: A Study in Three Blind Volunteers**
Eduardo Fernandez, M.D., Ph.D., University Miguel Hernandez, Spain

4:00 - 4:30 p.m. **The Intracortical Visual Prosthesis Clinical Trial: Status and Results**
Philip Troyk, Ph.D., Illinois Institute of Technology, Chicago, Illinois

4:30 – 5:00 p.m. **The Untold Story and Lesson Learned from the Argus II Retinal Prosthesis Project**
Avi Caspi, Ph.D., Jerusalem College of Technology, Jerusalem, Israel

5:00 – 6:00 p.m. GROUP DISCUSSION

6:00 – 9:00 p.m**. POSTER PRESENTATIONS AND COCKTAIL RECEPTION**

6:00 – 7:00 p.m. Group "A" Poster Presenters

7:00 - 8:00 p.m. Group "B" Poster Presenters

8:00 – 9:00 p.m. Group Poster Discussion

TUESDAY, October 10, 2023

(Presentations are 20-minutes long, plus a 10-minute Q & A – Challenge period)

7:00 - 8:00 a.m. **CONTINENTAL BREAKFAST**

7:45 - 7:55 a.m. **WELCOME & INTRODUCTION**

7:55 - 8:00 a.m. **HOUSEKEEPING ANNOUNCEMENTS**
David J. Goldman, M.D., M.B.A., Director, Detroit Institute of Ophthalmology

Session Nine: Psychophysics
Moderator: E.J. Chichilnisky, Ph.D., Stanford University, Stanford, California

8:00 - 8:30 a.m. **Spatial Mapping of Closely Spaced and Overlapping Phosphenes with the Intracortical Visual Prosthesis (ICVP) using Simultaneous Presentation and Implantee Control**
Michael Barry, Ph.D., ICVP, Chicago, Illinois

8:30 - 9:00 a.m. **Calibrated Measures in Virtual Reality for Prosthetic and Ultra-low Visual Performance**
Gislin Dagnelie, Ph.D., Johns Hopkins University, Baltimore, Maryland

9:00 - 9:30 a.m. **Gamification Enhances User Engagement and Task Performance in Prosthetic Vision Testing**
Byron Johnson, B.A., M.A., Bionic Vision Lab, Santa Barbara, California

9:30 - 10:00 a.m. BREAK

Session Ten: Psychophysics continued
Moderator: Tatiana Kameneva, Ph.D., Swinburne University of Technology, Melbourne, Australia

10:00 - 10:30 a.m. **Development and Validation of the Multi-Luminance Y-Mobility Test (MLYMT)) for Assessment of Vision-Guided Mobility in Patients with Profound Vision Loss**
Arup Roy, Ph.D., Nanoscope, Dallas, Texas

10:30 - 11:00 a.m. **The Role of Scalp EEG Recordings During Cortical Visual Prosthesis Testing**
Vernon Towle, Ph.D., University of Chicago, Chicago, Illinois

11:00 -12:00 p.m. Group Discussion

12:00 - 1:00 p.m. LUNCH AND POSTER AWARDS

Session Eleven: Cortical Responses
Moderator: Jong-Mo Seo, M.D., Ph.D., Seoul Artificial Retina Project, Seoul, Korea

1:00 - 1:30 p.m. **Neural Correlates of Visual Perception in Cortical Visual Prostheses: Insights for Bidirectional Prostheses Design**
Fabrizio Grani, M.Sc., University Miguel Hernandez, Elche, Spain

1:30 – 2:00 p.m. **Studying Cortical Responses to Retinal Prosthetic Stimulation at the Single Cell Resolution**
Yossi Mandel, M.D., Ph.D., Bar Ilan University, Ramat Gan, Israel

2:00 – 2:30 p.m. **Cortical Responses to Electrical and Light Stimulation after Transfection of the Retina**
Mathumathi Manoharan, M.Eng., University New South Wales, New South Wales, Australia

2:30 – 3:00 p.m. Group Discussion

3:00 - 3:30 p.m. Wrap-Up and Plans for 2025!