

THE EYE AND THE CHIP

12th World Research Congress

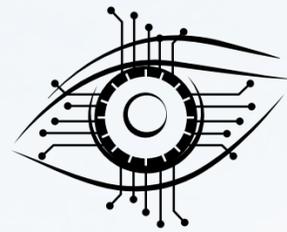
October 3-5 2021 - Hybrid Event

Nano-Electronics, Neurobiology
and Artificial Vision



DEPARTMENT OF OPHTHALMOLOGY

Detroit Institute of Ophthalmology



THE EYE AND THE CHIP

12th World Research Congress



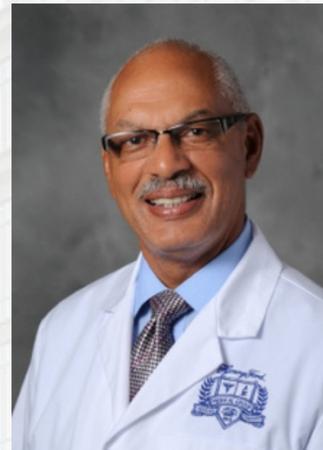
DEPARTMENT OF OPHTHALMOLOGY
Detroit Institute of Ophthalmology

Henry Ford Health System 2021 The Eye and The Chip Leadership Team



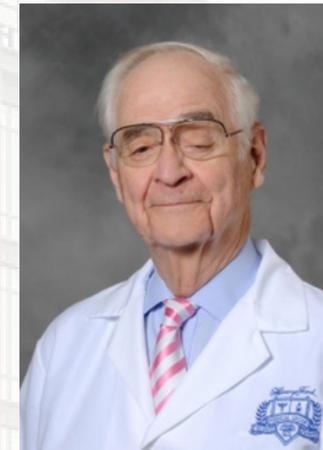
Robert Riney

President, Healthcare Operations and
Chief Operating Officer, HFHS



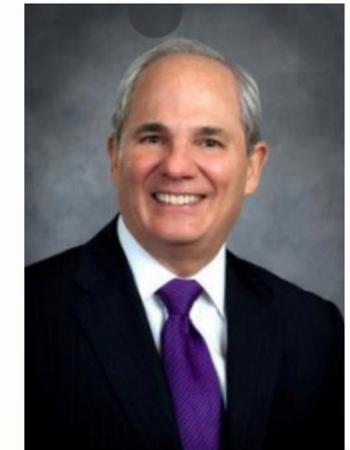
Paul Edwards MD F.A.C.S

Chairman, The McCole Chair
Department of Ophthalmology, HFHS



Philip Hessburg MD

Medical Director,
Detroit Institute of Ophthalmology, HFHS



Joseph Rizzo MD

Director, Massachusetts Eye & Ear Infirmary
Harvard Medical School



DEPARTMENT OF OPHTHALMOLOGY

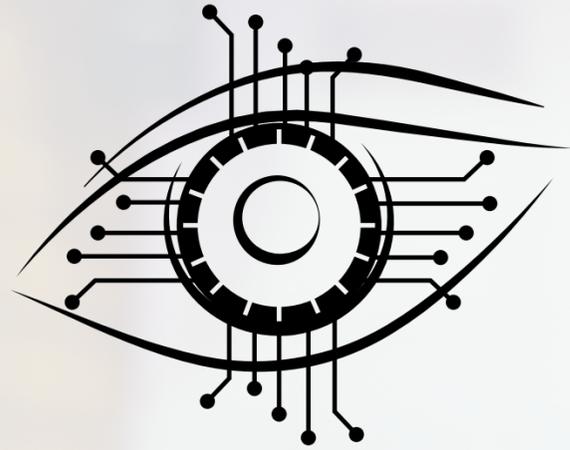
Detroit Institute of Ophthalmology

The Henry Ford Department of Ophthalmology is active in both basic eye research and clinical vision research and The Detroit Institute of Ophthalmology (DIO) is its Research and Education arm.

For 49 years the DIO has helped the blind and visually impaired maintain the highest quality of life by assisting and educating through a comprehensive range of support services.

Additionally, the DIO sponsors this biennial international research congress - ***The Eye and The Chip*** bringing together the world's leading vision-related scientists accelerating various developments to cure blindness. And, in alternate years sponsors a second congress, ***The Eye, The Brain & The Auto***, on the relationship between vision and driving.

World Research Congress



THE EYE AND THE CHIP

12th World Research Congress

October 3-5 2021 - Hybrid Event

Nano-Electronics, Neurobiology
and Artificial Vision

Since its inception in 2000, The Eye and The Chip World Research Congress has become the world's foremost meeting of experts in the development of neuro-prostheses for vision restoration for patients who are blind or severely visually impaired.

More than 30 speakers over three days present, discuss and collaborate with ophthalmologists, optometrists, neurologists and neurosurgeons from over 50 universities, academic research initiatives, and medical device corporations.

Co-hosted by Philip Hessburg MD, Medical Director, DIO and Joseph Rizzo MD, Professor of Neuro-ophthalmology, Harvard Medical School.

The in-person aspect of this hybrid event will be held at The Henry Hotel, Dearborn, MI. The virtual aspect will be held over Zoom.

Global Vision Impairment

There are an estimated **250 million people with visual impairments** worldwide. Of these, **35 million are blind** and **215 million have moderate to severe visual impairment (MSVI)**. There are over 1 million blind in the US alone.

The combination of a growing and an aging population will result in a massive increase in the number of people who are blind, especially from age-related macular degeneration, or have moderate to severe visual impairment (MSVI).

A further factor that also presents a major risk for the future is the dramatic increase being seen in all parts of the world in the number of people with diabetes which can, and so often does, cause diabetic retinopathy, a potentially blinding condition.



Congress Objectives

- To clearly understand which blind patients will eventually benefit from a visual neuro-prosthetic device
- To understand which patients benefit from a device within the eye, or will need a device in or on the visual cortex of the brain
- To understand the development process of a complex medical device and the role played by the USFDA
- To review progress in the field of visual neuro-prosthetic device development and implantation – challenges and successes
- To form additional collaborative relationships to accelerate device development and implementation
- To identify areas of progress in the wedding between neurobiology and nanotechnology
- To foster collegial interchange and collaborative relationships between major programs in America, Asia, Australia and Europe
- To identify advances and challenges remaining in the global pursuit of true artificial vision
- To Identify outcomes of device implantation where it is occurring—Europe, US, etc.
- To better understand the USFDA approval process for visual Neuro-prosthetic device implantation in humans

Congress Audience

Bioengineers

Biomaterials Researchers

Corporate Regulatory Officials

Electrical & Electronic Engineers

Medical Device Representatives

Nanotechnologists

Neuro-anatomists

Neuro-pathologists

Neuro-radiologists

Neurosurgeons

Neurophysiologists

Ophthalmologists

Optometrists

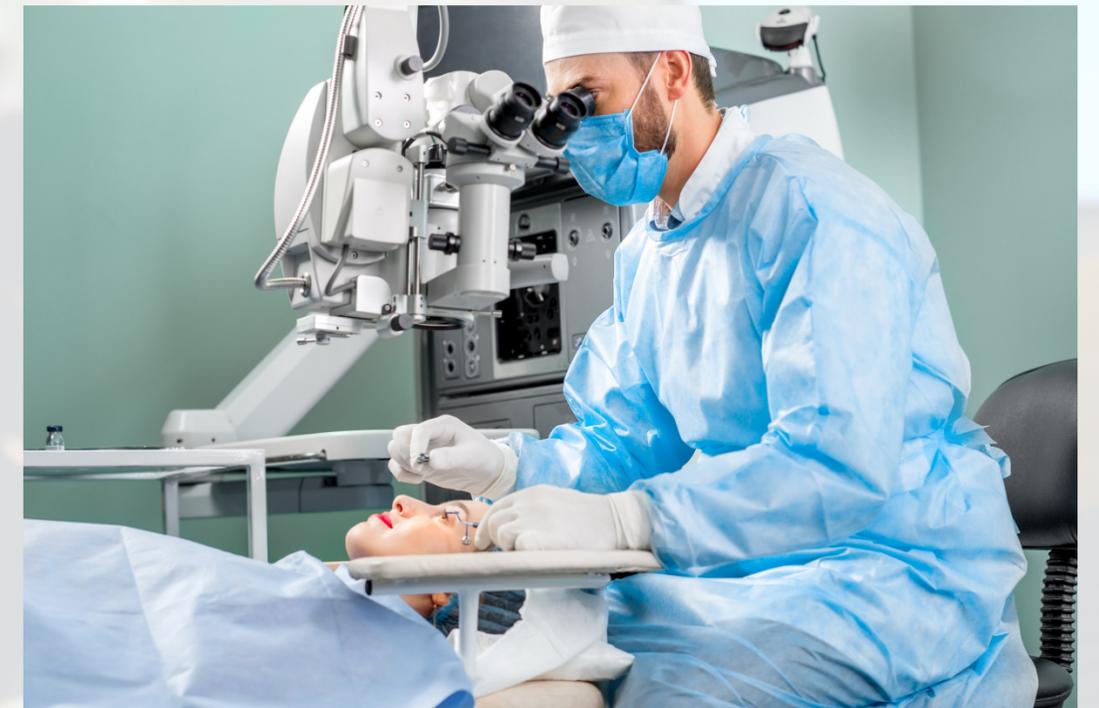
Blind Community

Interested Public, Press &

Journalists

Visual Physiologists

Venture Capitalists



The Bartimaeus Award

Named after the new testament blind person whose vision was restored, the Bartimaeus Award is presented at each World Congress to an investigator who has distinguished himself or herself by prolonged substantial contributions to progress in this field of artificial vision.

Joseph Rizzo, M.D. (2004)

Co-Founder, Boston Retinal Implant Project
Massachusetts Eye and Ear Infirmary
David G. Cogan Professor of Ophthalmology
in the field of Neuro-Ophthalmology,
Director of the Neuro-Ophthalmology Service
Harvard Medical School
Massachusetts Eye & Ear
Chair of Alumni Reunion
Boston, MA

Eberhart Zrenner, M.D. (2006)

Chair Professor of Ophthalmology
Center for Ophthalmology
Institute for Ophthalmic Research
University of Tübingen
Tübingen, Germany

Richard Normann, Ph.D. (2008)

Distinguished Professor of Bioengineering
and Ophthalmology
Moran Eye Center, University of Utah
Salt Lake City, UT

Robert Greenberg, M.D., Ph.D. (2010)

President & CEO
Second Sight Medical Products, Inc.
Sylmar, CA

Mark Humayun, M.D., Ph.D. (2010)

Professor of Ophthalmology
Biomedical Engineering, Cell and Neurobiology
Keck School of Medicine of the
University of Southern California
Associate Director of Research, Doheny Eye Institute
Los Angeles, CA

Professor Nigel Lovell, Ph.D. (2012)

Professor
University of South Wales
Sydney, Australia

Gregg Suaning, Ph.D. (2012)

Associate Professor
University of South Wales
Sydney, Australia

James Weiland, Ph.D. (2014)

Professor of Ophthalmology &
Biomedical Engineering
University of Southern California
Los Angeles, CA

Gislin Dagnelie, Ph.D. (2016)

Johns Hopkins University School of Medicine
JHU Lions Vision Center
Baltimore, MD

Shelley Fried, Ph.D. (2017)

Associate Professor
Department of Neurosurgery
Harvard Medical School
Massachusetts General Hospital
Boston, MA

Daniel Palanker, Ph.D. (2019)

Professor
Stanford University
Stanford, CA



Daniel Palanker, Ph.D. was the most recent winner of the Bartimaeus Award. Dr. Palanker is a Professor of Ophthalmology and Director of the Hansen Experimental Physics Laboratory at Stanford University.

Titles listed are at the time of receiving the Bartimaeus Award.

Research Areas

The following list is comprised of congress research areas which will improve the quality of visual images obtained with implanted electronic devices:

Understanding of Retinal Disease

Retinal Neurobiology

Optimal Stimulation Strategies

Computer Vision Algorithms

Computational Modeling of Retinal Response to Stimulation

Cortical Visual Neuroscience

Assessment of Outpatient Outcomes

Biomaterials

Visual Rehabilitation Strategies

Mobile Computing, Connectivity, and Imaging

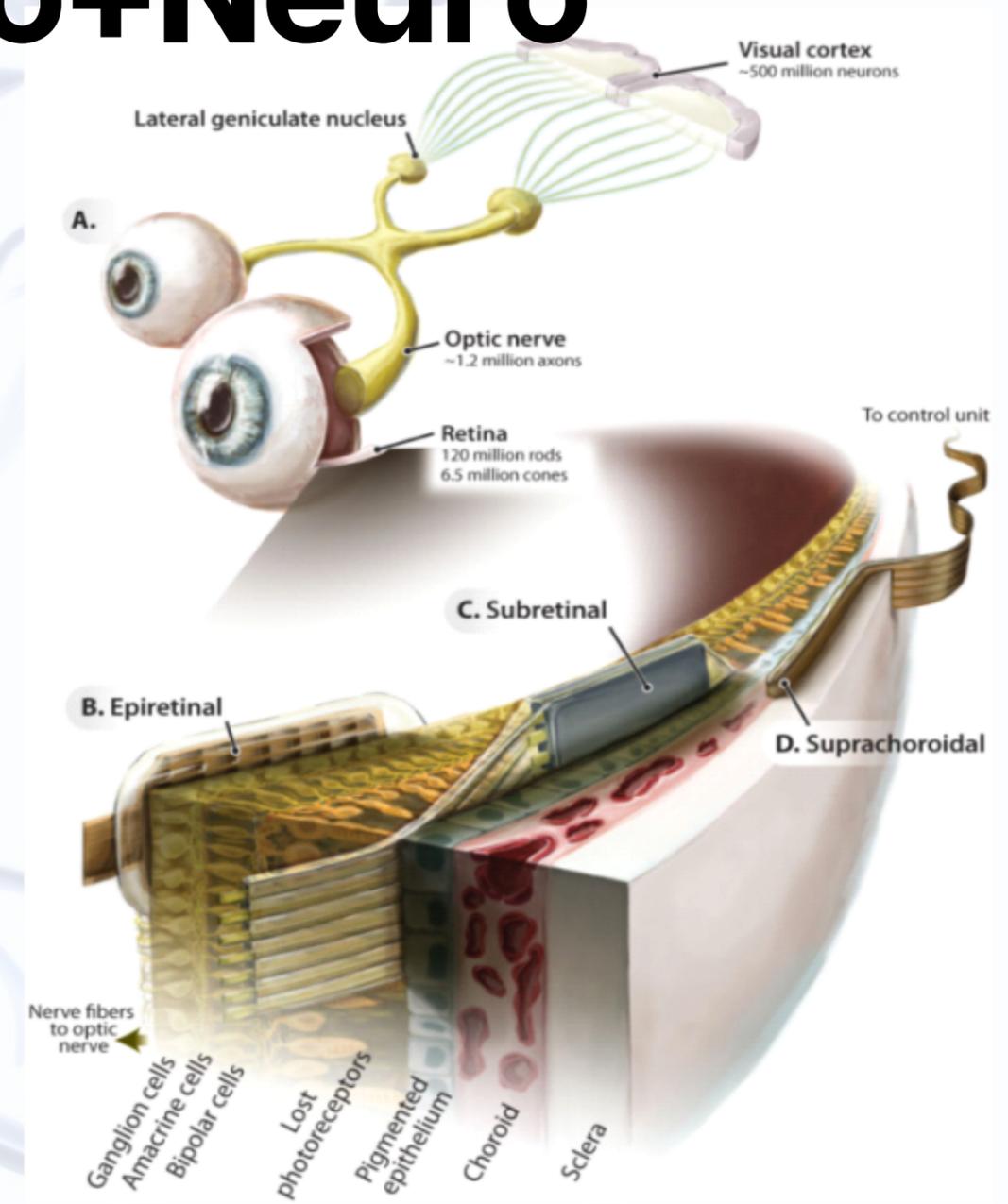
Compiled with the assistance of James Weiland, PhD
Professor, Biomedical Engineering
Professor, Ophthalmology and Visual Sciences
Bioelectronic Vision Lab, University of Michigan

Congress Focus: Nano+Neuro

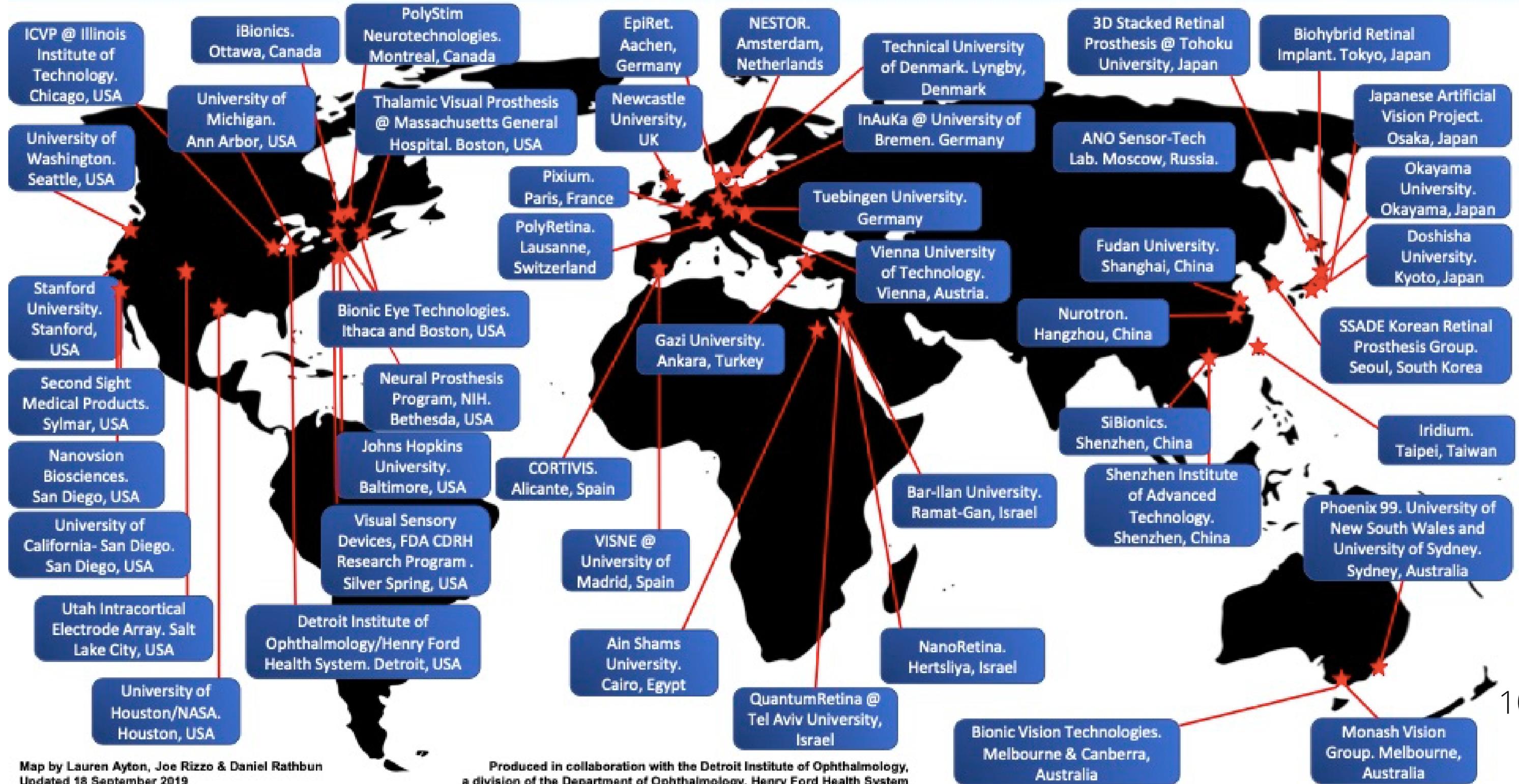
The heart of The Eye and The Chip World Research Congress is the identification of areas of progress in the marriage of neurobiology and nanotechnology that will allow devices to be placed in the eye or the brain to restore some level of useful vision to those who are now blind.

The Congress fosters a collegial interchange that helps achieve collaborative relationships between programs in America, Asia, Australia and Europe, identifying advances and challenges remaining in the global pursuit of true artificial vision.

The Congress identifies outcomes of human device implantation where it is occurring as well as progress in the USFDA approval process for visual neuro-prosthetic device implantation in humans.



Currently Active Vision Prosthesis Groups



Map by Lauren Ayton, Joe Rizzo & Daniel Rathbun
Updated 18 September 2019

Produced in collaboration with the Detroit Institute of Ophthalmology,
a division of the Department of Ophthalmology, Henry Ford Health System

Congress Testimonials

WHAT ARE THEY SAYING ABOUT THE EYE AND THE CHIP?

“In the year 2000, the Detroit Institute of Ophthalmology had the inspiration to foster a new collaboration among visual prosthesis researchers, clinicians, and workers in low vision rehabilitation by creating and sponsoring a series of biennial meetings called “The Eye and The Chip.” Successful beyond expectations, these meetings have become the premier gathering place for researchers from all parts of the world and from very different backgrounds. Invited speakers are scientists who are advancing the field, yet the scale and atmosphere allow all researchers, patients, and the media to come and be updated about progress over the past two years. More perhaps than at other scientific meetings, where investigators tend to gather within disciplines, participants at The Eye and The Chip are challenged to be open-minded, learn about and critique each other’s work, and return home with fresh ideas or interdisciplinary approaches.”

Visual Prosthetics, Physiology, Bioengineering, Rehabilitation
Gislin Dagnelie PhD, Editor, Johns Hopkins University School of Medicine, Baltimore MD

Congress Testimonials

WHAT ARE THEY SAYING ABOUT THE EYE AND THE CHIP?

"The Detroit meeting was definitely the best and most useful retinal implant meeting of the year. You have contributed so much to the field."

John L Wyatt Jr, PhD, Professor of Electrical Engineering, MIT, Cambridge MA

"The Eye and The Chip is a great meeting. It is the best in the field. There is nothing to improve."

Eberhart Zrenner, MD, Professor of Medicine - University Eye Hospital, Tübingen, Germany

"You are responsible for a unique event, unique especially in its atmosphere...unique also regarding the planting of numerous seeds for new research avenues and new cooperations. The quest for "Let there be light" begins in our minds and you have made a major contribution to the process. How did you do it? The scientific exchange, the spirit of cooperation and determination to make progress, and the social environment at this unique conference: The Eye and The Chip ... have been excellent. You and your team have basically invented a novel structure and environment to make scientists from different fields feel at ease so that they begin to think and communicate as a team. The desperately waiting blind individuals will be grateful to you."

Rolf Eckmiller, PhD, University of Bonn, Bonn, Germany

Congress Testimonials

WHAT ARE THEY SAYING ABOUT THE EYE AND THE CHIP?

"At the time of our first The Eye and The Chip meeting, now many years ago, the field of visual prosthetics was still in its infancy. The research community generally held a very skeptical attitude about the possible use of a bio-electronic implant to restore vision, despite the great success of cochlear implants. Over the last two decades our field has matured dramatically, and now there is widespread optimism about the potential for visual implants to help patients who are blind. The marked improvement in our status as a field is the result of excellent research from a large critical mass of scientists from throughout the world. It is the general opinion of researchers in our field that The Eye and The Chip meeting has provided the most vibrant source of scientific exchange for our field. The reasons for the success of this meeting relate to the fact that the meeting is devoted to a single topic, it is all-inclusive (anyone who is performing credible research in the field is invited to participate) and it provides a very substantial amount of time for open group discussions. These attributes expand the length of the meeting, which I understand increases the cost of the meeting, but the benefits have been remarkable for our field. Simply stated, The Eye and The Chip meeting provides the best venue for scientific and academic exchange in the world for the field of visual prosthetics."

Joseph Rizzo, MD, Harvard Medical School, Mass Institute of Technology, Boston MA

Congress Testimonials

WHAT ARE THEY SAYING ABOUT THE EYE AND THE CHIP?

“The Eye and The Chip has been instrumental in us moving forward and securing funding. It also allowed us to form some marvelous collaborations and exchanges. We have a joint project with Dr Jong-Mo Seo from Korea on surgical approaches and electrode manufacture. Also, Dr Robert Wilke from Professor Zrenner’s group in Tübingen has come to Australia for the next few years to work on mathematical models and in vitro experiments to better understand electrical stimulation of the retina. I believe that The Eye and The Chip ... was expertly run. The spirit of scientific collaboration and open debate that underpins the congress is a great contributor to collectively producing a therapeutic device.”

Nigel Lovell, PhD, University New South Wales, Australia

“The scientific program (at The Eye and The Chip) was outstanding with representatives from every major visual prosthetic group in the world in attendance. The 20-minute slots allowed sufficient time for each group to present their recent advances: the adherence to the schedule provided adequate time for questioning from the audience. The mix of clinical, biological and engineering talks allowed everyone to get a comprehensive overview of the diverse challenges associated with this project. Well done.”

Shelley Fried, PhD, Boston Retinal Implant Project, Boston MA

We Need Your Support

Hosting this year's biennial World Research Congress requires:

- Organizing a hybrid meeting consisting of both an in-person gathering as well as a virtual congress for those who are not able to be with us in person.
- Providing transportation and accommodations for Key Research Presenters and for selected "Poster Presenters," who are the future scientists broadening the further development of this field.
- Achieving the information technology sophistication necessary to achieve all our Hybrid Virtual Webcast Meeting goals.
- Producing a digital and press program book of presenting scientists, poster presenters, sponsors, etc.

Sponsorships

LEVELS AND BENEFITS

All supporters of The Eye and The Chip World Research Congress 2021 will receive the following benefits+:

- Company name and support level recognition in the Congress Program and from the podium
- Company name and support level on signage at the registration area, website, and emails leading up to the event

Visionary

\$25,000 (FMV*: \$4,052.50)

- Up to two tables and six exhibit staff with premium placement**
- Program attendance for six non-CME registrants**
- Six tickets for the Bartimaeus Dinner**
- Full page ad in Digital Program Book

Signature

\$10,000 (FMV*: \$2,722.50)

- One exhibit table and four exhibit staff for four non-CME registrants**
- Program attendance for four non-CME registrants**
- Four tickets for the Bartimaeus Dinner**
- Half page ad in Digital Program Book

Bartimaeus Dinner

\$6,000 (FMV*: \$1,442.50)

- Program attendance for two non-CME registrants**
- Two tickets to the Bartimaeus Dinner**
- Half page ad in Digital Program Book

Poster Session

\$5,000 (FMV*: \$1,392.50)

- Program attendance for two non-CME registrants**
- Two tickets for the Bartimaeus Dinner**
- Half page ad in Digital Program Book

Leadership

\$5,000 (FMV*: \$1,392.50)

- One exhibit table and two exhibit staff**
- Program attendance for two non-CME registrants**
- Two tickets to the Bartimaeus Dinner**
- Half page ad in Digital Program Book

Pioneer

\$2,500 (FMV*: \$802.50)

- One exhibit table and one exhibit staff**
- Program attendance for one non-CME registrant**
- One ticket for the Bartimaeus Dinner**
- Quarter page ad in Digital Program Book

Brand Builder

\$1,500 (FMV*: \$442.50)

- Verbal recognition from the event podium during Welcome and Breaks

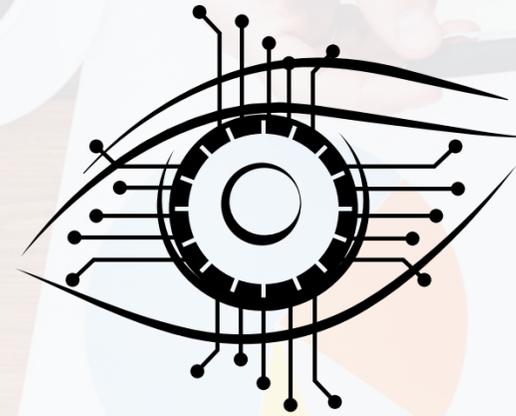
+Varies depending on sponsorship level

*FMV= Fair Market Value

**In person event benefit only

Organizing Committee

2021 The Eye and The Chip Organizing Committee



THE EYE AND THE CHIP

12th World Research Congress
October 3-5 2021 - Hybrid Event
Nano-Electronics, Neurobiology
and Artificial Vision

Greg Auner, PhD

Lauren Ayton, PhD

Paul Edwards, MD

Eduardo Fernandez, MD, PhD

David J. Goldman, MD, MBA

Lilly Hampton

Philip C. Hessburg, MD

Roseanne Horne

Lylas Mogk, MD

Edward R. O'Malley, MD

Daniel Rathbun, PhD

Joseph Rizzo, MD

Jason Schwalb, MD

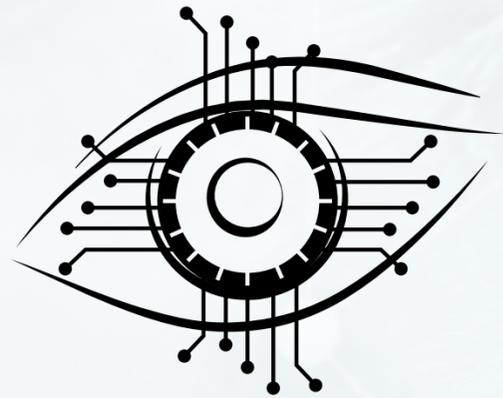
Mohit Shivdasani, PhD

Sashi Srivastava, PhD

Philip Troyk, PhD

James Weiland, PhD

Eberhart Zrenner, MD



THE EYE & THE CHIP

12th World Research Congress

October 3-5 2021 - Hybrid Event

Nano-Electronics, Neurobiology
and Artificial Vision

**For more information please call
Roseanne Horne (313) 936-1968 or
visit henryford.com/theeyeandthechip**



DEPARTMENT OF OPHTHALMOLOGY

Detroit Institute of Ophthalmology



Designed & Created by:

Cole FC Clark

www.colefclark.com