

***The Eye and the Chip: 2002***  
World Conference on Artificial Vision  
Thursday-Saturday, June 6-8, 2002

***Lawrence Technological University***  
Science Auditorium  
21000 W. Ten Mile Rd.  
Southfield, MI 48075-1058

# ***The Eye and The Chip: World Congress on Artificial Vision***

## **2002 CONFIRMED FACULTY:**

Gregory Acland PhD - University of Pennsylvania Vet School, Philadelphia PA  
 Gregory Auner PhD - Wayne State University, Detroit MI  
 Alan Chow - Optobionics, Wheaton IL  
 Hum Chung MD - Seoul National University, Seoul Korea  
 Gislin Dagnelie PhD - Johns Hopkins University School of Medicine, Baltimore MD  
 Eugene de Juan Jr MD - The Retina Institute/Doheny Eye Institute, Los Angeles CA  
 Rolf Eckmiller PhD - Department of Computer Sciences- University of Bonn, Germany  
 Charles Garcia MD - University of Houston, Houston TX  
 Rolf Eckmiller PhD - University of Bonn, Bonn Germany  
 Heinrich Gerding MD - University Eye Clinic, Munster Germany  
 Eugene Goldberg PhD - Gainesville FL  
 Robert Greenberg MD PhD - Second Sight Corporation, Los Angeles CA  
 William Heetderks MD PhD - NINDS & NIH, Bethesda MD  
 Raymond Lezzi MD - Kresge Eye Institute, Detroit MI  
 Alex Ignatiev PhD - University of Houston, Houston TX  
 Phil Kuekes PhD - Hewlett-Packard Laboratories, Palo Alto CA  
 Gosia Kulczycka PhD - General Motors Corporation, Detroit MI  
 Tanya Kuritz PhD - Oak Ridge National Lab, Oak Ridge TN  
 Alan Laties MD - University of Pennsylvania School of Medicine, PA  
 Gianluca Lazzi - North Carolina State University, Raleigh NC  
 Wentai Liu PhD - North Carolina State University, Raleigh NC  
 John Loewenstein MD - Harvard Medical School, Boston MA  
 Nigel Lovell PhD - University of Newcastle School of Engineering, Australia  
 J. Patrick McAllister PhD - Wayne State University School of Medicine, Detroit MI  
 David Miller MD - Harvard Medical School, Boston MA  
 Chuck Mosher - NuVue Technologies, Keene NH  
 Richard Normann PhD - University of Utah, Salt Lake City UT  
 Joseph Rizzo MD - Harvard Medical School, Boston MA

## **2000-2002 SPONSORS:**

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*“You are responsible for a unique event, unique especially in its atmosphere, which will be remembered by us, the lucky participants. 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 this process.”*

– Rolf Eckmiller PhD, Germany - Invited Faculty, “The Eye and The Chip”

# ***The Eye and The Chip: World Congress on Artificial Vision***

Thursday, June 6, 2002

7:45am-5:00pm

<b>Introduction</b>		<b>FACULTY</b>	<b>STATUS</b>
7:45am	<b>Welcome: Keith Cooley, Chair, Research Committee, Detroit Institute of Ophthalmology</b> <b>Charles Chambers PhD, President, Lawrence Technological University</b> <b>Moderator: Philip C Hessburg MD</b>		
A. 8:00-8:30am*	The Ultimate Synthetic Retina	David Miller MD, Boston MA <i>Harvard School of Medicine</i>	CONFIRMED
B. 8:30-9:00am	Neural Substrate for Visual Prosthesis	Alan Laties MD, Philadelphia PA <i>University of Pennsylvania School of Med</i>	CONFIRMED
<b>A Very Different Approach</b>			
	<b>Moderator: David Miller MD</b>		
C. 9:00-9:30 am	Photophysics of Neural Cells and Artificial Sight	Tanya Kuritz PhD, Oak Ridge TN <i>Oak Ridge National Lab</i>	CONFIRMED
D. 9:30-10:00am	Break		
<b>Assaying Retinal and Cortical Function</b>			
	<b>Moderator: David Miller MD</b>		
E. 10:00-10:30 am	Technical Methods of Acuity Assay	Gary Trick PhD, Detroit MI <i>Henry Ford Health System</i>	CONFIRMED
F. 10:30-11:00am	Evaluating Visual Function Improvements in People with Moderately to Severely Impaired Vision	Ron Schuchard PhD, Decatur GA <i>VA Med Center Atlanta</i>	CONFIRMED
G. 11:00-11:30 am	Cortically Based Artificial Vision: Systems and Science	Richard Normann PhD, Salt Lake City UT <i>University of Utah</i>	CONFIRMED
H. 11:30am-12:00pm	Discussion		
I. 12:00-1:00pm	Lunch		
<b>Animal vs. Human Testing</b>			
	<b>Moderator: Joseph Rizzo MD</b>		
J. 1:00-1:30pm	Test Technology for Learning Retina Implants in Humans and Non-Human Primates	Rolf Eckmiller PhD, Bonn Germany <i>University of Bonn</i>	CONFIRMED
K. 1:30-2:00pm	Animal vs. Human Testing (Should Human Testing Be Done?) AN OPEN DISCUSSION	Phil Troyk PhD, Chicago IL <i>Illinois Institute of Technology</i> Joseph Rizzo MD, Boston MA <i>Harvard School of Medicine &amp; MIT</i>	CONFIRMED
L. 2:00-2:30pm	The Stanford Experience (The Artificial Synapse Chip: A Novel Interface for a Retinal Prosthesis based on Neurotransmitter Stimulation and Nerve Regeneration	Ted Leng, Mountain View CA <i>Stanford University School of Medicine</i>	CONFIRMED
M. 2:30-3:00pm	Break		
<b>Business and Governmental Considerations</b>			
	<b>Moderator: Michael Trese MD</b>		
N. 3:00-3:30pm	Neural Prostheses for the Central Nervous System	William Heetderks MD PhD, Bethesda MD <i>NINDS, NIH</i>	CONFIRMED
O. 3:30-4:00pm	The Role of FDA in Ophthalmic Device Regulation	James Saviola OD, Rockville MD <i>Center for Devices and Radiological Health</i>	CONFIRMED
P. 4:00-4:30pm	The Worldwide Neuro-Prosthetic Device Patent Portfolio- Patenting Process	Gosia Kulczycka PhD, Detroit MI <i>General Motors Corporation</i>	CONFIRMED
Q. 4:30-5:00pm	Discussion	Philip C Hessburg MD	

\*20 presentations followed by a 10 discussion. Formatted for 17 Periods (12 Speakers, 2 Discussion Periods, 3 Breaks).

# ***The Eye and The Chip: World Congress on Artificial Vision***

Friday, June 7, 2002

8:00am-5:00pm

<b>Financing the Artificial Vision Effort</b>		<b>FACULTY</b>	<b>STATUS</b>
	<b>Moderator: Anne Nachazel MD</b>		
R. 8:00-8:30am*	American Capital Acquisition	Chuck Mosher, Keene NH <i>NuVue Technologies</i>	CONFIRMED
S. 8:30-9:00am	Learning Retina Implants: Development, Marketing, & IP-Management- A European Perspective	Steffen Suchert, Esq, Bonn Germany <i>Intelligent Implants Corporation</i>	CONFIRMED
T. 9:00-9:30am	The Challenge of Nidek Vision Institute	Tohru Yagi PhD, Japan <i>Nidek Technologies Inc</i>	CONFIRMED
U. 9:30-10:00am	Break		
<b>Retinal Group Reports</b>			
	<b>Moderator: Eugene Goldberg MD</b>		
V. 10:00-10:30am	The Artificial Silicon Retina: First Clinic Trials	Alan Chow MD, Chicago IL <i>Optobionics Corporation</i>	CONFIRMED
W. 10:30-11:00am	Subretinal Implant Experience (Germany)	Eberhart Zrenner MD, Tübingen Germany <i>University of Tübingen</i>	CONFIRMED
X. 11:00-11:30am	Update on the Second Sight Retinal Prosthesis Program	Robert Greenberg MD PhD, Valencia CA <i>Second Sight Inc</i>	CONFIRMED
Y. 11:30am-12:00pm	Discussion		
Z. 12:00-1:00pm	Lunch		
<b>Retinal Group Reports</b>			
	<b>Moderator: George Williams MD</b>		
AA. 1:00-1:30pm	Epiretinal Implant Experience (USA) (Update on Human Experimentation)	Eugene deJuan Jr MD, Los Angeles CA <i>University of Southern California</i> <i>(talk will be given by James Weiland PhD)</i>	CONFIRMED
BB. 1:30- 2:00pm	Epiretinal Implant Experience (USA)	Joseph Rizzo MD, Boston MA <i>Harvard School of Medicine &amp; MIT</i>	CONFIRMED
CC. 2:00-2:30pm	Epiretinal Implant Experience (USA)	Ray Iezzi MD, Detroit MI <i>Kresge Eye Institute</i>	CONFIRMED
DD. 2:30-3:00pm	Break		
<b>Cortical Implants</b>			
	<b>Moderator: Eugene Goldberg PhD</b>		
EE. 3:00-3:30pm	Using Simulations to Explore the Properties of Prosthetic Vision	Gislin Dagnelie PhD, Baltimore MD <i>Johns Hopkins School of Medicine</i>	CONFIRMED
FF. 3:30-4:00pm	Developing an Intracortical Visual Prosthesis	Phil Troyk PhD, Chicago IL <i>Illinois Institute of Technology</i>	CONFIRMED
FF.4:00-4:30pm	Biocompatibility Issues for Cortical Implants	Pat McAllister PhD, Detroit MI <i>Wayne State University School of Medicine</i>	CONFIRMED
GG.4:30-5:00pm	Discussion & Wrap-Up	Philip C Hessburg MD	

\*20 presentations followed by a 10 discussion. Formatted for 17 Periods (12 Speakers, 2 Discussion Periods, 3 Breaks)

# ***The Eye and The Chip: World Congress on Artificial Vision***

Saturday, June 8, 2002

8:00am-4:30pm

<b>Surgical Techniques</b>		<b>FACULTY</b>	<b>STATUS</b>
	<b>Moderator: Joseph Rizzo MD</b>		
HH. 8:00-8:30am*	Retinal Implant Surgical Technique	Heinrich Gerding MD, Munster Germany <i>University Eye Clinic</i>	CONFIRMED
II. 8:30-9:00am	Retinal Implant Surgical Technique	John Loewenstein MD, Boston MA <i>Harvard School of Medicine</i>	CONFIRMED
JJ. 9:00-9:30am	Animal Models of Hereditary Retinal Degeneration	Gregory Acland PhD, Ithaca NY <i>Cornell University</i>	CONFIRMED
KK. 9:30-10:00am	Break		
<b>New Research Efforts</b>			
	<b>Moderator: Janet Blanks PhD</b>		
LL. 10:00-10:30am	The Australian Experience: Vision Prostheses	Gregg Suaning PhD, Australia <i>University of Newcastle</i> Nigel Lovell PhD <i>University of New South Wales</i>	CONFIRMED
MM. 10:30-11:00am	Retinal Prosthesis Chip Design Issues	Wentai Liu PhD, Raleigh NC <i>North Carolina State University</i>	CONFIRMED
NN. 11:00-11:30am	The Korean Experience: Development of Polyimide Photodiode Electrode Array System For Laser Signaling Retinal Prosthesis	Hum Chung MD, Seoul Korea <i>Seoul National University</i>	CONFIRMED
OO. 11:30am-12:00pm	Discussion		
PP. 12:00-12:45pm	Lunch		
<b>Nanoelectronic Advances</b>			
	<b>Moderator: Greg Auner PhD</b>		
QQ. 12:45-1:15pm	Molecular Electronics- Chips Smaller Than Cells	Philip Kuekes, Palo Alto CA <i>Hewlett-Packard Laboratories</i>	CONFIRMED
RR. 1:15-1:45pm	Development of Ceramic Optical Microdetectors for Implantation	Alex Ignatiev PhD, Houston TX <i>University of Houston</i> Charles Garcia MD, Houston TX <i>University of Houston</i>	CONFIRMED
SS. 1:45-2:15pm	Advances in Chip Development	Gregory Auner PhD, Detroit MI <i>Wayne State University, Dept of Engineering</i>	CONFIRMED
TT. 2:15-2:30pm	Break		
<b>Significant Technical Issues</b>			
	<b>Moderator: Gary Trick PhD</b>		
UU. 2:30-3:00pm	Electromagnetic & Thermal Considerations	Gianluca Lazzi PhD, Raleigh NC <i>North Carolina State University</i>	CONFIRMED
VV. 3:00-3:30pm	Ophthalmic Biomaterials: Properties Affecting Function & Stability of Implants Designed for Retinal Repair or Replacement	Eugene Goldberg MD PhD, Gainesville FL <i>University of Florida, Biomaterials Research Center</i>	CONFIRMED
WW. 3:30-4:00pm	General Discussion, How are we doing?	Joseph Rizzo MD, Boston MA <i>Harvard School of Medicine</i>	CONFIRMED
<b>Conclusions</b>			
	<b>Keith Cooley, Philip C Hessburg MD</b>		

\*20 presentations followed by a 10 discussion. Formatted for 16 Periods (12 Speakers, 1 Discussion Period, 3 Breaks)

## *The Eye and the Chip 2002 Event Gallery*



*The Eye and The Chip 2002 Faculty leave the Hyatt-Regency, Dearborn to attend EyesOn Design, Vision Honored*



*The Eye and The Chip World Congress, held at Lawrence Technological University in June 2002*

## *The Eye and the Chip 2002 Event Gallery*



*From left to right: Alan Chow MD (Optobionics Corporation), Philip C Hessburg MD (The Detroit Institute of Ophthalmology), Charles Garcia MD (University of Houston), Keith Cooley (Chairman, Research Committee, DIO) converse at The Eye and The Chip 2002 at Lawrence Technological University*



*Jane King, a member of the visually impaired community, enjoys the Q&A session of The Eye and The Chip 2002*