48TH ANNUAL MEETING

NANOS 2022

February 12-17 • JW Marriott Austin • Austin, TX

On Demand viewing available March 9 - May 31, 2022
## SCHEDULE-AT-A-GLANCE

### SATURDAY, FEBRUARY 12
- **8:00 am – 12:00 pm** | NANOS Board of Directors Meeting ................................................................. | Brazos
- **2:00 pm – 7:30 pm** | Registration/Help Desk ................................................................................. | Lone Star Foyer
- **4:00 pm – 5:00 pm** | Neuro-Radiology Symposium [1.0] ............................................................. | Lone Star DEFGH
- **6:00 pm – 9:30 pm** | Welcome Reception and Line Dancing Lesson (with support from Viridian Therapeutics, Inc.) ............................................................. | Lone Star ABC

### SUNDAY, FEBRUARY 13
- **6:30 am – 7:30 am** | Breakfast ........................................................................................................ | Griffin Hall
- **6:30 am – 5:30 pm** | Registration/Help Desk .................................................................................. | Lone Star Foyer
- **7:30 am – 9:30 am** | Frank B. Walsh (I) [2.0] ................................................................................ | Lone Star DEFGH
- **9:30 am – 10:00 am** | Coffee Break ................................................................................................ | Griffin Hall
- **10:00 am – 11:45 am** | Frank B. Walsh (II) [1.75] ......................................................................... | Lone Star DEFGH
- **11:45 am – 12:30 pm** | Lunch .............................................................................................................. | Griffin Hall
- **12:00 pm – 1:00 pm** | Fellowship Directors Committee Meeting .................................................. | Brazos
- **7:30 am – 9:30 am** | State of the Art in Neuro-Ophthalmic Disease [2.0] .................................. | Lone Star DEFGH
- **9:30 am – 10:00 am** | Coffee with Exhibitors ................................................................................... | Griffin Hall
- **10:00 am – 12:00 pm** | NOVEL Update ................................................................................................ | Lone Star DEFGH
- **12:10 pm – 1:30 pm** | Lunch Break .................................................................................................. | Lone Star DEFGH
- **12:20 pm – 1:20 pm** | Real-World Experience With a Treatment for Thyroid Eye Disease (TED)* .................................................................................. | Lone Star ABC

### MONDAY, FEBRUARY 14
- **6:00 am – 6:45 am** | Yoga .................................................................................................................. | 301/302
- **6:30 am – 7:30 am** | Breakfast with Exhibitors ........................................................................... | Griffin Hall
- **7:30 am – 9:30 am** | Breakfast with the Novices ........................................................................ | Griffin Hall
- **6:30 am – 5:00 pm** | Registration/Help Desk ................................................................................... | Lone Star Foyer
- **6:30 am – 7:30 am** | NOVEL/Editorial Board/Curriculum Committee Meeting ................................ | Brazos
- **9:30 am – 10:00 am** | Coffee with Exhibitors (with support from GenSight Biologics) .................. | Griffen Hall
- **9:30 am – 10:00 am** | State of the Art in Neuro-Ophthalmic Disease [2.0] .................................. | Lone Star DEFGH
- **10:00 am – 12:00 pm** | NOVEL Update ................................................................................................ | Lone Star DEFGH
- **10:00 am – 11:30 am** | Does My Patient Need Surgery/A Procedure? Indications, Outcomes, and More! [1.5] ................................................................. | Lone Star DEFGH
- **11:30 am – 12:00 pm** | Business Meeting ........................................................................................ | Griffen Hall
- **12:00 pm – 12:10 pm** | NOVEL Update ................................................................................................ | Lone Star DEFGH
- **12:10 pm – 1:30 pm** | Lunch Break .................................................................................................. | Lone Star DEFGH
- **3:30 pm – 4:45 pm** | Challenging Cases for Surgical Neuro-Ophthalmologists [1.25] .............. | Lone Star DEFGH
- **5:00 pm – 7:00 pm** | Scientific Platform Session I [2.0] .............................................................. | Lone Star DEFGH

### TUESDAY, FEBRUARY 15
- **6:00 am – 6:45 am** | Yoga .................................................................................................................. | 301/302
- **6:30 am – 7:30 am** | Breakfast with Exhibitors ........................................................................... | Griffen Hall
- **7:30 am – 9:30 am** | Breakfast with the Novices ........................................................................ | Griffen Hall
- **6:30 am – 12:00 pm** | Registration/Help Desk ................................................................................... | Lone Star Foyer
- **6:30 am – 7:30 am** | JNO Editorial Board Meeting ....................................................................... | Brazos
- **7:30 am – 9:30 am** | Scientific Platform Session II [2.0] ............................................................. | Lone Star DEFGH
- **9:30 am – 10:00 am** | Coffee with Exhibitors (with support from GenSight Biologics) .................. | Griffen Hall
- **10:00 am – 12:00 pm** | NOVEL Update ................................................................................................ | Lone Star DEFGH
- **12:00 pm – 12:10 pm** | JNO Update .................................................................................................. | Lone Star DEFGH
- **12:10 pm – 6:00 pm** | Afternoon Free for Activities .................................................................. | Lone Star ABC
- **12:25 pm – 1:25 pm** | NMOSD: Differentiating Advances in the Diagnostic and Treatment Armamentarium* ................................................................ | Lone Star ABC
- **3:30 pm – 5:35 pm** | YONO Forum .................................................................................................. | Lone Star ABC
- **6:30 pm – 8:30 pm** | Meet the Poster Author: Analytical Studies (with support from Viridian Therapeutics, Inc.) ............................................................. | Griffen Hall
- **8:30 pm – 9:30 pm** | Abstract Committee Meeting ......................................................................... | Brazos

### WEDNESDAY, FEBRUARY 16
- **6:00 am – 6:45 am** | Yoga .................................................................................................................. | 301/302
- **6:30 am – 7:30 am** | Breakfast with Exhibitors ........................................................................... | Griffen Hall
- **7:30 am – 9:30 am** | Breakfast with the Novices ........................................................................ | Griffen Hall
- **6:30 am – 12:30 pm** | Registration/Help Desk ................................................................................... | Lone Star Foyer
- **6:30 am – 7:30 am** | CME Committee Meeting ............................................................................... | Brazos
- **6:45 am – 7:15 am** | DEI Committee Meeting ................................................................................ | 205
- **7:30 am – 9:30 am** | Mitochondrial Disorders: More Than the Optic Nerve [2.0] ......................... | Lone Star DEFGH
- **9:30 am – 10:00 am** | Coffee with Exhibitors ................................................................................... | Griffen Hall
- **10:00 am – 11:30 am** | Does My Patient Need Surgery/A Procedure? Indications, Outcomes, and More! [1.5] ................................................................. | Lone Star DEFGH
- **11:30 am – 12:00 pm** | Jacobson Lecture – The Power of Connection [0.5] ........................................ | Lone Star DEFGH
- **12:00 pm – 1:30 pm** | Research Committee Meeting ....................................................................... | Brazos
- **1:00 pm – 2:30 pm** | WIN Forum – Our Time is Now ................................................................ | Lone Star ABC
- **2:30 pm – 4:30 pm** | Vestibular and Ocular Motor Skills Transfer [2.0] ........................................ | Lone Star DEFGH
- **4:45 pm – 5:45 pm** | Consortium of Pediatric Neuro-Ophthalmologists (CPNO) ......................... | Brazos
- **6:30 pm** | Banquet .......................................................................................................... | Lone Star DEFGH

### THURSDAY, FEBRUARY 17
- **6:30 am – 12:00 pm** | Registration/Help Desk ................................................................................... | Lone Star Foyer
- **6:30 am – 7:30 am** | Breakfast ........................................................................................................ | Griffen Hall
- **7:30 am – 9:30 am** | Functional Disorders and the Neuro-Ophthalmologist [2.0] ......................... | Lone Star DEFGH
- **9:30 am – 10:00 am** | Coffee Break ................................................................................................. | Lone Star Foyer
- **10:00 am – 12:00 pm** | Complex Cases in Pediatric Neuro-Ophthalmology: Avoiding Mimickers, Missteps, and Misdiagnosis [2.0] .................................................. | Lone Star DEFGH
Welcome

Hello! On behalf of the North American Neuro-Ophthalmology Society (NANOS), we are excited to welcome you to the 48th Annual Meeting. Health and well-being of our attendees is our top priority and we implemented new health and safety measures to ensure a safe, inclusive, and welcoming environment for all.

The NANOS Annual Meeting continues to be the premier meeting for cutting-edge innovation and advances in Neuro-Ophthalmology. This year’s meeting will provide a forum for everyone to come together from across the globe to share expertise and advance the field of Neuro-Ophthalmology through case discussions, didactic sessions, workshops, and networking opportunities. We look forward to you being part of it!

The NANOS Scientific Program Committee has developed a spectacular program. This year’s meeting covers many topics and features symposia on State of the Art in Neuro-Ophthalmic Disease, Hot Topics!, Mitochondrial Disorders: More than the Optic Nerve, Does My Patient Need Surgery/A Procedure? Indications, Outcomes, and More!, Functional Disorders and the Neuro-Ophthalmologist, and Complex Cases in Pediatric Neuro-Ophthalmology: Avoiding Mimickers, Missteps, and Misdiagnosis. Optional symposia include Fostering Leadership and Mentorship in Neuro-Ophthalmology: Evolving Concepts from Medical School to Retirement, Challenging Cases for Surgical Neuro-Ophthalmologists, and Vestibular and Ocular Motor Skills Transfer. To accommodate the continual growth of high-quality abstract submissions, NANOS will host two Meet the Poster Author Sessions that will include both Descriptive Studies and Analytical Studies in Neuro-Ophthalmology. By popular demand, our posters will be featured virtually to allow for more viewing time prior to the Meet the Poster Author sessions. Our platform sessions will feature innovative scientific presentations.

Please join us at the Welcome Reception on Saturday, February 12th at 6:00 pm. Heavy hors d’oeuvres and drinks are provided, followed by line dancing instruction.

Be sure to attend the Business Meeting on Sunday, February 13th at 2:30 pm in Lone Star DEFGH.

Breakfast for registrants only will be provided daily. Lunch will be provided on Sunday, February 13th. Everyone is invited to participate in the industry lunch symposium hosted by Horizon Therapeutics on Monday, February 14th and CME industry lunch symposium organized by Vindico Medical Education on Tuesday, February 15th.

We are excited to offer a professional headshot photo station this year. Instructions for signing up are on Page 3.

Finally, put on your best Western attire and join us for a fun night of celebration at the Annual Banquet on Wednesday, February 16th! Dinner and awards from 6:30 - 8:00 pm. Music and dancing begin at 8:00 pm. Group line dancing performances are encouraged! We will also have a photo booth with props so you can take home a memento from the evening. Guest tickets are available for purchase with online registration or onsite.

I want to personally thank the Scientific Program Committee, Walsh Committee and Organizers, Abstract Committee, Development Committee, CME Committee, NANOS Board of Directors, Meeting Faculty, NANOS Executive Office, and everyone else who has generously donated their time and efforts to put together this outstanding meeting.

I hope you enjoy the 2022 NANOS Annual Meeting!

Valerie Biousse, MD
NANOS President
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GENERAL INFORMATION

EXHIBITOR HOURS:
This year’s Exhibit Hall is located in Griffin Hall. The Exhibit Hall will be open during the days and times listed below. Be sure to visit the exhibitors during breakfast and coffee breaks, as they help make this meeting possible!

Monday, February 14th  6:30 am – 10:00 am  
Tuesday, February 15th  6:30 am – 10:00 am  
Wednesday, February 16th  6:30 am – 10:00 am  

NANOS REGISTRATION/HELP DESK HOURS:
Location: Lone Star Foyer  
Saturday:  2:00 pm – 7:30 pm  
Sunday:  6:30 am – 5:30 pm  
Monday:  6:30 am – 5:00 pm  
Tuesday:  6:30 am – 12:00 pm  
Wednesday:  6:30 am – 12:30 pm  
Thursday:  6:30 am – 12:00 pm  

NEW THIS YEAR!
PROFESSIONAL HEADSHOT PHOTO BOOTH
Need a new professional headshot? Stop by the professional headshot booth from Sunday through Tuesday located in room 304 to have one taken. Complimentary for all attendees and guests. Sign up here:

Sunday, February 13th  6:30 am – 4:30 pm  
Monday, February 14th  6:30 am – 4:30 pm  
Tuesday, February 15th  6:30 am – 4:30 pm  

WIFI INSTRUCTIONS:
Network name: JWMarriott_Conference  
Passcode: NANOS22

CME
The North American Neuro-Ophthalmology Society is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Claiming CME is easy:
1. Click on the Evaluations icon in the mobile app and complete the evaluation for each session you attended OR visit the Annual Meeting Website (login required) and click on the Evaluations tile to complete the evaluations for each session you attended.
2. Complete the Overall Meeting Evaluation.
3. If claiming MOC credits, you must complete the Pre-Test and Post-Test.

Total Annual Meeting Credits (in-person):  
30 AMA PRA Category 1 Credits™

Total Annual Meeting Credits (on-demand):  
28 AMA PRA Category 1 Credits™

ABPN Self-Assessment CME
The American Board of Psychiatry and Neurology has reviewed the NANOS Annual Meeting and has approved this activity as part of a comprehensive self-assessment activity, which is managed by the ABMS as a necessary component of continuing certification. More information can be found at www.abpn.com.

ABO Self-Assessment CME
Successful completion of this CME activity, which includes participation in the evaluation component, earns credit toward the Lifelong Learning Self-Assessment requirement for the American Board of Ophthalmology’s Continuing Certification program. It is the CME activity provider’s responsibility to submit learner completion information to ACCME for the purpose of granting credit. More information can be found at www.abop.org.
Guide to using the eventScribe® App for NANOS 48th Annual Meeting

1. Download the eventScribe® App

Scan this QR code for the App Store and Google Play. Download the eventScribe App to your device.

Scan the QR Code or go to the Apple App Store or Google Play and search for “eventscribe”

INSTALL and OPEN the eventscribe app, then look for your event icon or SEARCH for your event app by entering “2022 NANOS 48th Annual Meeting”

CLICK to launch your event’s app.

2. Login to NANOS 48th Annual Meeting App

To start using your event app, select the “Login” to proceed to the login page. You need to enter your username and password.

Forgot Password? Use the “Reset Password” link on the login page.

3. Use the app and engage with the event!

Locate the full conference schedule from the mobile app. Learn about our speakers, network and message other attendees (be sure to agree to “share” your information when you log in).

Our exhibitors have exciting booths set up and ready for you to visit in person. Use the app’s interactive floor plan to find your favorite exhibitors.

Look for instant notifications with the mobile app from event organizers for important updates and messages.

Enjoy the Conference!

NEED HELP USING THE APP?
TECHNICAL SUPPORT:
Mon-Fri, 9am-5pm (EST)
877-426-6323 / 410-638-9239

*Download the app before the event starts to make sure you login properly.
LEVEL 2

GRiffin HAll

LEVEL 3

Receptions – Lone Star ABC

General Session – Lone Star DEFGH

Registration – Lone Star Foyer

Committee Meetings – Brazos and Room 205

Exhibits/Coffee Breaks/Meals/Meet the Poster Author – Griffin Hall
SATURDAY, FEBRUARY 12TH

8:00 am – 12:00 pm  NANOS Board of Directors Meeting ................................................................. Brazos
2:00 pm – 7:30 pm  Registration/Help Desk ................................................................. Lone Star Foyer
4:00 pm – 5:00 pm  Neuro-Radiology Symposium [1.0] ................................................ Lone Star DEFGH

Manraj K.S. Heran, MD, FRCPC

This neuroradiology session is designed to provide participants with education and information regarding (1) the imaging appearance and evaluation of orbital vascular anomalies and (2) discuss management strategies for a range of low- and high-flow malformations involving the orbit and cavernous sinus region.

Upon completion of this session, participants should be able to: (1) diagnose the common vascular anomalies affecting the orbit, as well as identify their key imaging features and (2) become familiar with the types of medications and image-guided interventional techniques used for treatment of these conditions.

6:00 pm – 9:30 pm  Welcome Reception and Line Dancing Lesson ...................................................... Lone Star ABC
(with support from Viridian Therapeutics, Inc.)

All are welcome! Reconnect with your NANOS colleagues during the reception from 6:00 – 7:30 pm and then join us for a lesson in line dancing led by professionals. Heavy hors d’oeuvres provided at the reception.
SUNDAY, FEBRUARY 13TH

6:30 am – 7:30 am  Breakfast ................................................................. Griffin Hall
6:30 am – 5:30 pm  Registration/Help Desk .................................................. Lone Star Foyer
7:30 am – 9:30 am  Frank B. Walsh (I) [2.0] ......................................................... Lone Star DEFGH

Host: University of British Columbia  
Chair: Jason Barton, MD, PhD, FRCPC  
Committee Members:  Jean Y. Chuo, MD, Kristopher Kowal, MD, Anastasia Neufeld, MD, FRCSC, DABO, Claire Sheldon, MD, PhD, Sara Ann Simpson, MD, FRCP, and Salina Teja, MD, FRCSC  

Expert Panel:  
Neuroradiologist: Manraj K.S. Heran, MD, FRCPC  
Neuropathologist: Veronica Hirsch-Reinshagen, MD, PhD, FRCPC

This session is designed to present complex neuro-ophthalmic cases that impact the human visual pathways and ocular motor systems. The format is a clinicopathologic conference. Clinical cases will be presented by neuro-ophthalmologists with comments by a neuroradiologist, neuropathologist and other selected experts. Neuroimaging, laboratory and surgical pathology data will help illustrate clinical point. Cases will be discussed from clinical, anatomic, radiologic and pathologic aspects with emphasis on diagnosis, pathophysiology and management.

Upon completion of this session, participants should be able to: (1) recognize the varied presentations of neuro-ophthalmic disease, (2) correlate the anatomic localization and histopathologic appearance with the clinical presentations, (3) use radiologic procedures in diagnosis effectively, (4) recognize both the value and limitations of neuropathology, and (5) discuss newly described diseases and their connection.

Moderators: Kristopher Kowal, MD, Anastasia Neufeld, MD, FRCSC, DABO, Dane Breker, MD, and Sophia Chung, MD
7:30 am – 7:45 am  Welcome/Introduction
7:45 am – 8:05 am  Hydrocephalus Appetizer, TED Entrée, Side of Bipolar Disease. Would You Like a Meatball With That? Eric Caskey, MD
8:05 am – 8:25 am  Not Another IgG4 Case! Anne R. Kao, MD
8:25 am – 8:45 am  Some Heads Are Harder Than Others, Steven A. Newman, MD
8:45 am – 9:05 am  Is the Treatment Working? Yes, the Patient Is Getting Worse! Walid Bouthour, MD
9:05 am – 9:25 am  WD-40: A Multi-Use Product, Georgia Kaidonis, MD, PhD
9:25 am – 9:30 am  Wrap Up
9:30 am – 10:00 am  Coffee Break

10:00 am – 11:45 am  Frank B. Walsh (II) [1.75]  Moderators: Claire Sheldon, MD, PhD, Salina Teja, MD, FRCSC, Lynn K. Gordon, MD, PhD and Sangeeta Khanna, MD
10:00 am – 10:20 am  Just a Flu? Lily “Tali” Okrent Smolar, MD
10:20 am – 10:40 am  All in the Family, Homer Chiang, MD
10:40 am – 11:00 am  Waiting for That ‘Bing’ Moment to Get the Diagnosis, Jenny L. Hepschke, MBBS, BSc(Med), DM
11:00 am – 11:20 am  Thinking Outside of the Lines, Carleigh N. Bruce, MD
11:20 am – 11:40 am  Double Crossed, Jeffrey Gluckstein, MD
11:40 am – 11:45 am  Morning Wrap-Up

11:45 am – 12:30 pm  Lunch
12:00 pm – 1:00 pm  Fellowship Directors Committee Meeting
12:30 pm – 2:30 pm  Meet the Poster Author: Descriptive Studies

12:30 pm – 1:30 pm  Odd Numbered Posters
1:30 pm – 2:30 pm  Even Numbered Posters

2:30 pm – 3:00 pm  Business Meeting
3:00 pm – 5:15 pm  Frank B. Walsh (III) [2.25]  Jean Y. Chuo, MD, Sara Ann Simpson, MD, FRCPC, and Peter Quiros, MD
3:00 pm – 3:20 pm  The Inconspicuous Cysts, Lily Zhang, MD
3:20 pm – 3:40 pm  The Nidus of the Neuropathy, Heather M. McDonald, BSc, MD
3:40 pm – 4:00 pm  A Nod to the Nodule, Natalie Brossard, MD, MSc
4:00 pm – 4:20 pm  Pseudo-Pseudotumor Cerebri? Etienne Benard-Seguin, MD, BSc
4:20 pm – 4:40 pm  An Apple a Day... Joseph W. Fong, MD
4:40 pm – 5:00 pm  The Grey Area of White Matter, Parker Bohm, MD
5:00 pm – 5:15 pm  Closing Remarks

5:30 pm – 6:00 pm  Walsh Committee Meeting
5:45 pm – 6:45 pm  Members-in-Training Reception

(BThis reception is for Students, Residents, Fellows-in-Training, NANOS Board of Directors members, Fellowship Directors, Student Clerkship, and Neurology and Ophthalmology Residency Directors.)

Back this year! All fellowship directors with availability and applicants or potential applicants looking for a fellowship are invited to participate in fellowship “speed dating.” If you have a vacancy during these fellowship periods, please stop by.

6:00 pm – 6:15 pm  2022 – 2023 Fellowship Period
6:15 pm – 6:35 pm  2023 – 2024 Fellowship Period
6:35 pm – 6:45 pm  2024 – 2025 Fellowship Period
Monday, February 14th

6:00 am – 6:45 am  Yoga ..................................................................................................................... 301/302
6:30 am – 7:30 am  Breakfast with Exhibitors .................................................................................... Griffin Hall
6:30 am – 7:30 am  Breakfast with the Novices .................................................................................. Griffin Hall

Join us in the reserved YONO area at breakfast for table discussions led by senior members and/or YONOs to discuss topics relevant to aspiring or current YONOs.

6:30 am – 7:30 am  Choosing Neurology vs Ophthalmology and Building a Successful Application, Melinda Y. Chang, MD and Stacy V. Smith, MD
6:30 am – 7:30 am  Surgical Neuro-Ophthalmology, Lauren Ditta, MD and Howard R. Krauss, MD, SM, BEEE
6:30 am – 7:30 am  Clinical Neuro-Ophthalmology - Combining With Other Neuro Subspecialties, Fiona Costello, MD and Kathleen Digre, MD

6:30 am – 5:00 pm  Registration/Help Desk ........................................................................................... Lone Star Foyer
6:30 am – 7:30 am  NOVEL/Editorial Board/Curriculum Committee Meeting ........................................... Brazos
7:30 am – 9:30 am  State of the Art in Neuro-Ophthalmic Disease [2.0] ......................................................... Lone Star DEFGH

In the past several years, significant progress has been made in the understanding of the pathogenesis, clinical manifestations, and management of a variety of neuro-ophthalmic diseases. The goal of this session is to provide a review on the current status and new developments of five important disease processes: neurotrophic keratopathy, cerebrospinal fluid dynamics, multiple sclerosis, glaucoma and orbital inflammatory disease. Neurotropic keratopathy can be vision threatening and, in some patients, calcitrant to standard therapy. The indications and surgical technique of corneal neurotization will be discussed. The exact etiopathogenesis of idiopathic intracranial hypertension remains unclear. However, recent research has suggested that the central nervous system lymphatic and glymphatic systems may contribute to the development of elevated intracranial pressure. This complex issue will be presented with a focus on the current literature. The therapeutic armamentarium of multiple sclerosis continues to grow at an extraordinary and accelerated pace. New immunomodulating therapies will be reviewed, which provide physicians and patients alike with an unprecedented number of options. Glaucoma remains an enigma not only in terms of the cause but treatment. The diagnostic challenge of glaucomatous optic neuropathy mimicking other types of optic neuropathies will be discussed with an emphasis on clinical manifestations and a targeted evaluation. A wide variety of inflammatory conditions can affect the orbit. The diagnostic evaluation and treatment modalities of orbital inflammatory disease will be summarized.
Upon completion of this symposium, learners should be able to: (1) define the indications for corneal neurotization, (2) explain the role of the lymphatic and glymphatic system in cerebrospinal fluid dynamics, (3) identify new and important advancements in multiple sclerosis therapeutics, (4) differentiate glaucomatous from non-glaucomatous optic neuropathies, and (5) recognize the variety of different etiologies resulting in orbital inflammation.

7:30 am – 7:35 am  Introduction
7:35 am – 7:55 am  Preserving and Re-inner-vating the Corneal Surface, Kimberly Cockerham, MD
7:55 am – 8:15 am  CNS Lymphatics and Glymphatics and the Eye, Esriel H. Killer, MD
8:15 am – 8:35 am  Advances in MS Therapy, Bart K. Chwalisz, MD
8:35 am – 8:55 am  Glaucoma and the Neuro-Ophthalmologist: A Case-Based Approach, Helen Danesh-Meyer, MD, PhD
8:55 am – 9:15 am  Inflammatory Orbital Disorders, Nailyn Rasool, MD
9:15 am – 9:30 am  Q&A

9:30 am – 10:00 am  Coffee with Exhibitors ................................................. Griffin Hall
10:00 am – 12:00 pm  Hot Topics! [2.0] ..................................................................... Lone Star DEFGH

This symposium is designed to provide the audience with a practical, evidence-based discussion on how to manage important and emerging clinical scenarios, which are of specific and contemporary interest to the neuro-ophthalmic community. “Hot topics” will be presented by established experts and thought leaders for the respective conditions.

Upon completion of this symposium, learners should be able to: (1) recognize when a neuro-ophthalmic problem is related to COVID-19, (2) summarize the treatment of MOG-related disorders, (3) state when a myasthenia gravis patient should be referred for thymectomy, and (4) recognize the utility of multimodal OCT in the diagnosis of optic disc drusen (ODD) and exclusion of mimics.

10:00 am – 10:20 am  Patient-Reported Outcome Measures in Neuro-Ophthalmic Clinical Research, Lindsey De Lott, MD, MS
10:20 am – 10:40 am  COVID-19: Where Are We? Cristiano Oliveira, MD
10:40 am – 11:00 am  Treatment of MOG-Related Disorders, John J. Chen, MD, PhD
11:00 am – 11:20 am  Myasthenia Gravis: Time for Thymectomy? Judith Warner, MD
11:20 am – 11:40 am  Mining for ODD Using Multimodal OCT, Steffen Hamann, MD, PhD
11:40 am – 12:00 pm  Q&A

12:00 pm – 12:10 pm  NOVEL Update, Kathleen Digre, MD ............................................. Lone Star DEFGH
12:10 pm – 1:30 pm  Lunch Break
12:20 pm – 1:20 pm  Real-World Experience With a Treatment for Thyroid Eye Disease (TED)*, Madhura A. Tamhankar, MD .................................................................... Lone Star ABC

*This lunch symposium is organized by Horizon Therapeutics plc.

Learn about key clinical data and explore case studies of chronic TED and compressive optic neuropathy (CON) patients. This presentation is intended for U.S.-based healthcare professionals.

1:30 pm – 3:15 pm  Fostering Leadership and Mentorship in Neuro-Ophthalmology:
Evolving Concepts from Medical School to Retirement [1.75] .................................. Lone Star DEFGH

The importance of leadership through mentorship impacts every aspect of one’s neuro-ophthalmology career. This symposium will focus on fostering mentorship cultures and leadership opportunities by: introducing the concepts of mentorship from a 360-degree perspective; discussing approaches to recruitment of trainees into our discipline; highlighting diverse early career paths; exploring continued leadership roles outside the clinical sphere; and reflecting on later career contributions. Come for stories, discussion, and advice for all career stages. Attendance welcomed by all!
Upon completion of this symposium, learners should be able to: (1) identify the common perceived barriers to hosting medical students in a neuro-ophthalmology clinic, (2) describe ways to minimize barriers to hosting medical students in a neuro-ophthalmology clinic, (3) enumerate different neuro-ophthalmologist practice models, and (4) describe revenue-generating activities outside the clinic that can be gratifying for the neuro-ophthalmologist.

1:30 pm – 1:35 pm  
Introduction, Kimberly Winges, MD

1:35 pm – 2:05 pm  
How to Foster a Mentorship Culture  
Moderators: Kimberly Winges, MD and Nailyn Rasool, MD  
Panelists: Sangeeta Khanna, MD, Susan Mollan, FRCOphth and Barbara Yates, MD

2:05 pm – 2:30 pm  
How to Encourage Future Generations of Neuro-Ophthalmology Leaders Through the Medical Student and Resident Pipeline  
Moderators: Kevin Lai, MD and Collin McClelland, MD  
Panelists: Courtney E. Francis, MD, Nancy J. Newman, MD and Peter Quiros, MD

2:30 pm – 3:10 pm  
Seeking New Opportunities to Train and Lead Throughout One’s Career  
Moderators: Madhura Tamhankar, MD and Barbara Yates, MD  
Panelists: Gena Heidary, MD, PhD, Melissa W. Ko, MD, Nailyn Rasool, MD, and Valerie Purvin, MD

3:10 pm – 3:15 pm  
Closing, Kevin Lai, MD

3:30 pm – 4:45 pm  
Challenging Cases for Surgical Neuro-Ophthalmologists [1.25]  
Moderators: Ore-ofe Adesina, MD and Courtney E. Francis, MD  
Panelists: Lauren Ditta, MD, Valerie Elmalem, MD, Howard R. Krauss, MD, SM, BEEE, Vivek Patel, MD, Roger Turbin, MD, FACS and Nicholas Volpe, MD

This symposium has been created to highlight the surgical aspects of our field and to educate neuro-ophthalmologists and trainees through the presentation and discussion of complex surgical neuro-ophthalmic case scenarios.

Upon completion of this symposium, learners should be able to: (1) recognize when surgical intervention can or should be applied to the management of neuro-ophthalmic patients, (2) compare and contrast surgical options for patients with neuro-ophthalmic diagnoses amenable to surgical intervention, and (3) identify gaps in understanding of surgical interventions for neuro-ophthalmic patients and utilize the skills gained to apply to patient care.

5:00 pm – 7:00 pm  
Scientific Platform Session I [2.0]  
Moderators: Beau Bruce, MD, PhD and Caroline Froment, MD, PhD

5:00 pm – 5:15 pm  
Modulation of the Neuro-Glia-Vascular Niche by Plasma From Patients With Nonarteritic Anterior Ischemic Optic Neuropathy, Yaping Joyce Liao, MD, PhD

5:15 pm – 5:30 pm  
Portable Vacuum Goggles Significantly Increase Optic Nerve Blood Flow in Human Glaucoma and NAION Eyes, Randy Kardon, MD, PhD

5:30 pm – 5:45 pm  
Do Retinal Microvascular Changes Improve TIA Risk Stratification Scores? ABCD2 vs. ABCDEye, Beau Bruce, MD, PhD

5:45 pm – 6:00 pm  
Magnitude and Evolution of Optic Nerve Head and Peripapillary Hyperemic Response Depends on Flicker Duration, Moe Aung, MD, PhD

6:00 pm – 6:15 pm  
Retinal Vessel Dynamics as a Surrogate Marker for Intracranial Pressure in Idiopathic Intracranial Hypertension, Elisabeth Wibroe, MD

6:15 pm – 6:30 pm  
Deep Learning Can Accurately Distinguish Between True Papilledema and Optic Disc Drusen on Fundus Photographs, Kanchalika Sathanonvichitr, MD

6:30 pm – 6:45 pm  
A Prospective, Clinic-Based Evaluation of a Trained Deep-Learning System Reveals High Accuracy for Papilledema Detection, Raymond Najjar, PhD

6:45 pm – 7:00 pm  
Proton Nuclear Magnetic Resonance Spectroscopy Metabolomic Analysis in Idiopathic Intracranial Hypertension Identifies Insights Into Pathogenesis, Andreas Yiangou, MRCP
Join us in the reserved YONO area at breakfast for table discussions led by senior members and/or YONOs to discuss topics relevant to aspiring or current YONOs.

6:30 am – 7:30 am  
**Negotiating/Interviewing for Jobs**, Kimberly Gokoffski, MD, PhD and Vivek Patel, MD

6:30 am – 7:30 am  
**Academic/Private Practice/Hybrid Models of Neuro-Ophthalmic Practice**, Patricia Johnston McNussen, MD and Valerie Purvin, MD

7:30 am – 9:30 am  
**Scientific Platform Session II [2.0]**

7:30 am – 7:45 am  
Impact of Glucose on Mitochondrial Function in a Brain Slice Model of Headache Mechanisms, Olivia Grech, MRes

7:45 am – 8:00 am  
How Much Weight Loss is Required to Reduce Intracranial Pressure in Idiopathic Intracranial Hypertension? Susan Mollan, MB chB, FRCPophth

8:00 am – 8:15 am  
A Randomized Controlled, Trial of the GLP-1 Receptor Agonist Exenatide in Idiopathic Intracranial Hypertension, James Mitchell, MB, BS, MRCP

8:15 am – 8:30 am  
Intra-Cranial Pressure in Idiopathic Intracranial Hypertension, Insights From Long-Term Telemetric Monitoring, Alex Sinclair, MD, PhD

8:30 am – 8:45 am  
A Randomized Prospective Trial Comparing Repository Corticotropin Injection and Intravenous Methylprednisolone in Acute Optic Neuritis, Jeffrey Bennett, MD, PhD

8:45 am – 9:00 am  
International Multicenter Retrospective Study on Maintenance Intravenous Immunoglobulin in Preventing Relapse in Adult MOG-Antibody-Associated Disease, John J. Chen, MD, PhD

9:00 am – 9:15 am  
Long-Term Efficacy of Satralizumab in Neuromyelitis Optica Spectrum Disorder: Results from SAKuraSky and SAKuraStar, Ingo Kleiter, MD

9:15 am – 9:30 am  
Referral Patterns to Neuro-Ophthalmology for Presumptive Idiopathic Intracranial Hypertension (IIH) Based on Isolated Neuroimaging Findings, Andre Aung, MD

9:30 am – 10:00 am  
**Coffee with Exhibitors** (with support from GenSight Biologics)

10:00 am – 12:00 pm  
**Scientific Platform Session III [2.0]**

Moderators: Robert Avery, DO, MSCE and Stacy Pineles, MD
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>10:00 am – 10:15 am</td>
<td>Sustainability of Teprotumumab Efficacy in Thyroid Eye Disease, Prem S. Subramanian, MD, PhD</td>
</tr>
<tr>
<td>10:15 am – 10:30 am</td>
<td>Prevalence of Choroidal Abnormalities and Lisch Nodules in Children Meeting Clinical/ Molecular Diagnosis of NF1, Mariana Flores Pimentel, MD, FICO</td>
</tr>
<tr>
<td>10:30 am – 10:45 am</td>
<td>Peripapillary Hyperreflective Ovoid Mass-like Structures (PHOMS) in a Child Cohort, Lasse Malmqvist, MD, PhD</td>
</tr>
<tr>
<td>10:45 am – 11:00 am</td>
<td>Continuous Hypoxia Reduces Retinal Ganglion Cell Degeneration in a Mouse Model of Mitochondrial Optic Neuropathy, Nancy J. Newman, MD</td>
</tr>
<tr>
<td>11:00 am – 11:15 am</td>
<td>Genotype-Phenotype Correlations in Autosomal Dominant Optic Atrophy, Joshua Harvey, MA, BM, BCh, FRCOphth</td>
</tr>
<tr>
<td>11:15 am – 11:30 am</td>
<td>REFLECT Trial: Efficacy and Safety of Bilateral Gene Therapy for Leber Hereditary Optic Neuropathy, Jonathan Horton, MD, PhD</td>
</tr>
<tr>
<td>11:30 am – 11:45 am</td>
<td>Retrograde Transport to Retinal Ganglion Cells: An Alternative Strategy for Gene Delivery in Optic Neuropathies, Sidney Gospe, MD, PhD</td>
</tr>
<tr>
<td>11:45 am – 12:00 pm</td>
<td>Electric Fields Direct Full-Length Optic Nerve Regeneration and Partial Restoration of Visual Function, Micalla Peng, BS</td>
</tr>
<tr>
<td>12:00 pm – 12:10 pm</td>
<td>JNO Update, Laura Balcer, MD, MSCE ................................................................. Lone Star DEFGH</td>
</tr>
<tr>
<td>12:10 pm – 6:00 pm</td>
<td>Afternoon free for activities ................................................................. Lone Star ABC</td>
</tr>
<tr>
<td>12:25 pm – 1:25 pm</td>
<td>NMOSD: Differentiating New Advances in the Diagnostic and Treatment Armamentarium* ................................................................. Lone Star ABC</td>
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<tr>
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<td>*This lunch symposium is organized by Vindico Medical Education with grant support from Genentech. NANOS is not the CME provider for this symposium.</td>
</tr>
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</table>

Upon completion of this symposium, learners should be able to: (1) summarize evidence-based criteria that aides in early detection and staging of neuromyelitis optica spectrum disorder (NMOSD), (2) differentiate the mechanisms of action of currently available NMOSD therapeutics to better understand how they can be utilized in individual patients, and (3) assess current evidence pertaining to the safety and efficacy of monoclonal antibodies used in the treatment of NMOSD, including their ability to control acute attacks and prevent future relapses.

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<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>12:25 pm – 12:30 pm</td>
<td>Introduction and Pre-Test, Andrew G. Lee, MD</td>
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<tr>
<td>12:30 pm – 12:40 pm</td>
<td>NMOSD: A Diagnostic Dilemma, Heather E. Moss, MD, PhD</td>
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<tr>
<td>12:40 pm – 1:00 pm</td>
<td>Differentiating Therapeutic Options for NMOSD: Applying Evidence to Practice, John J. Chen, MD, PhD</td>
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<tr>
<td>1:00 pm – 1:10 pm</td>
<td>Panel Discussion with Case Presentation – Treatment of NMOSD</td>
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<tr>
<td>1:10 pm – 1:25 pm</td>
<td>Post-Test and Q&amp;A, Andrew G. Lee, MD</td>
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<tr>
<td>3:30 pm – 5:35 pm</td>
<td>YONO Forum ...................................................................................................... Lone Star ABC</td>
</tr>
<tr>
<td>3:30 pm – 3:35 pm</td>
<td>Introduction, Kevin Lai, MD</td>
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<tr>
<td>3:35 pm – 3:50 pm</td>
<td>Improving Your Professional Efficiency, Andrew G. Lee, MD</td>
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<tr>
<td>3:50 pm – 4:05 pm</td>
<td>Roundtable Discussion: Improving Your Professional Efficiency</td>
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<tr>
<td>4:05 pm – 4:20 pm</td>
<td>Building Professional Support Networks, Prem S. Subramanian, MD, PhD and Valerie Biousse, MD</td>
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<tr>
<td>4:20 pm – 4:35 pm</td>
<td>Roundtable Discussion: Building Professional Support Networks</td>
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<tr>
<td>4:35 pm – 4:50 pm</td>
<td>Maintaining Work/Life Balance, Alfredo Sadun, MD</td>
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<tr>
<td>4:50 pm – 5:05 pm</td>
<td>Roundtable Discussion: Maintaining Work/Life Balance</td>
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<tr>
<td>5:05 pm – 5:20 pm</td>
<td>Molding a Job You Love, Nancy J. Newman, MD</td>
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<tr>
<td>5:20 pm – 5:35 pm</td>
<td>Roundtable Discussion: Molding a Job You Love</td>
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<tr>
<td>5:35 pm</td>
<td>Conclusion</td>
</tr>
<tr>
<td>6:30 pm – 8:30 pm</td>
<td>Meet the Poster Author: Analytical Studies ......................................................... Griffin Hall (with support from Viridian Therapeutics, Inc.)</td>
</tr>
</tbody>
</table>

Heavy hors d’oeuvres buffet included. Guest must purchase tickets for $150 per person online or onsite.

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:30 pm – 7:30 pm</td>
<td>Odd Numbered Posters</td>
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<tr>
<td>7:30 pm – 8:30 pm</td>
<td>Even Numbered Posters</td>
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<tr>
<td>8:30 pm – 9:30 pm</td>
<td>Abstract Committee Meeting .............................................................................. Brazos</td>
</tr>
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### WEDNESDAY, FEBRUARY 16TH

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>6:00 am – 6:45 am</td>
<td>Yoga</td>
<td>301/302</td>
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<tr>
<td>6:30 am – 7:30 am</td>
<td>Breakfast with Exhibitors</td>
<td>Griffin Hall</td>
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<tr>
<td>6:30 am – 7:30 am</td>
<td>Breakfast with the Novices</td>
<td>Griffin Hall</td>
</tr>
<tr>
<td>6:30 am – 12:30 pm</td>
<td>Registration/Help Desk</td>
<td>Lone Star Foyer</td>
</tr>
<tr>
<td>6:30 am – 7:30 am</td>
<td>CME Committee Meeting</td>
<td>Brazos</td>
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<tr>
<td>6:45 am – 7:15 am</td>
<td>DEI Committee Meeting</td>
<td>205</td>
</tr>
<tr>
<td>7:30 am – 9:30 am</td>
<td>Mitochondrial Disorders: More Than the Optic Nerve [2.0]</td>
<td>Lone Star DEFGH</td>
</tr>
<tr>
<td></td>
<td>Moderators: Kimberly Gokoffski, MD, PhD and Patrick Yu-Wai-Man, MD, PhD</td>
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</table>

Join us in the reserved YONO area at breakfast for table discussions led by senior members and/or YONOs to discuss topics relevant to aspiring or current YONOs.

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>6:30 am – 7:30 am</td>
<td>Things I Wish I Knew Early in My Practice, Andrew Melson, MD</td>
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</tbody>
</table>

Defects in mitochondrial metabolism result in a heterogeneous group of genetic disorders characterized by marked variability in clinical presentation. Uncovering the underlying causative mutations is challenging, complicated by the fact that two sets of genomes, the nuclear and mitochondrial genomes, can contribute to disease pathogenesis. This session will provide a clinically oriented overview of the latest advances made in uncovering the genetic basis of mitochondrial disorders, their variable phenotypes, including both ocular and extraocular manifestations, and the emerging treatment options that are being evaluated.

Upon completion of this symposium, learners should be able to: (1) describe the common genetic defects underlying mitochondrial disease, (2) recognize the ocular and extraocular manifestations of mitochondrial disease, and (3) discuss current and emerging treatments for mitochondrial disease.

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<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:30 am – 7:50 am</td>
<td>Mitochondrial Optic Neuropathies – Expanding Genotypes and Phenotypes, Rustum Karanjia, MD, PhD</td>
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<tr>
<td>7:50 am – 8:00 am</td>
<td>Q&amp;A</td>
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<tr>
<td>8:00 am – 8:20 am</td>
<td>Mitochondrial Genetics – From Genes to Disease Mechanisms, Valerio Carelli, MD, PhD</td>
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<tr>
<td>8:20 am – 8:30 am</td>
<td>Q&amp;A</td>
<td></td>
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<tr>
<td>8:30 am – 8:50 am</td>
<td>Myopathies and Cerebral Dysfunction, Michio Hirano, MD</td>
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<tr>
<td>8:50 am – 9:00 am</td>
<td>Q&amp;A</td>
<td></td>
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<tr>
<td>9:00 am – 9:20 am</td>
<td>Current Treatment Strategies and Future Prospects for Mitochondrial Disease, Nancy J. Newman, MD and Michio Hirano, MD</td>
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<tr>
<td>9:20 am – 9:30 am</td>
<td>Q&amp;A</td>
<td></td>
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<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>9:30 am – 10:00 am</td>
<td>Coffee with Exhibitors</td>
<td>Griffin Hall</td>
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<tr>
<td>10:00 am – 11:30 am</td>
<td>Does My Patient Need Surgery/A Procedure?</td>
<td>Lone Star DEFGH</td>
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<td></td>
<td>Indications, Outcomes, and More! [1.5]</td>
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</table>

Moderators: Madhu Agarwal, MD and Valerie Elmalem, MD
Everchanging interventions provide the opportunity to understand best options for patients in our current practice. This symposium is dedicated to exploring surgical treatment options for a variety of neuro-ophthalmic conditions including idiopathic intracranial hypertension, strabismus and orbital lesions. As interventions become more varied and complex, the neuro-ophthalmologist must review novel and current surgical strategies for these patients.

Upon completion of this symposium, learners should be able to: (1) demonstrate the utility of optic nerve sheath fenestration and shunting in idiopathic intracranial hypertension, (2) differentiate between various surgical approaches to the orbit, (3) assess various surgical strategies for strabismus in a case-based approach, and (4) analyze endovascular techniques in idiopathic intracranial hypertension.

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<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>10:00 am – 10:18 am</td>
<td>Nuts and Bolts of Shunts: What to Tell My Patient About Them</td>
<td>Tonya Stefko, MD</td>
</tr>
<tr>
<td>10:18 am – 10:36 am</td>
<td>Orbital Surgery: Approaches and Outcomes</td>
<td>Howard R. Krauss, MD, SM, BEEE</td>
</tr>
<tr>
<td>10:36 am – 10:54 am</td>
<td>Endovascular Treatments of Neuro-Ophthalic Disorders</td>
<td>Marc Dinkin, MD</td>
</tr>
<tr>
<td>10:54 am – 11:12 am</td>
<td>Advanced Strabismus for the Non-Surgeon</td>
<td>Madhura Tamhankar, MD</td>
</tr>
<tr>
<td>11:12 am – 11:30 am</td>
<td>Q&amp;A</td>
<td></td>
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11:30 am – 12:00 pm

Jacobson Lecture – The Power of Connection [0.5], Fiona Costello, MD

The 2022 Dr. Daniel Jacobson Lecture presented by Dr. Fiona Costello will highlight how the visual system provides a model of central nervous system (CNS) inflammatory disorders, through which mechanisms of brain injury and repair may be better understood.

Upon completion of this symposium, learners should be able to: (1) discuss current challenges in distinguishing optic neuritis subtypes, (2) review the role of the visual system in capturing mechanisms of CNS injury, (3) highlight future directions in developing visual biomarkers in multiple sclerosis and related disorders, and (4) describe the power of connection, from the inception of an idea to a worldwide network.

12:00 pm – 1:30 pm

Research Committee Meeting

1:00 pm – 2:30 pm

WIN Forum – Our Time is Now

We welcome all attendees to our WIN forum where we will focus on our WIN member accomplishments and highlight Dr. Sangeeta Khanna’s (2020 awardee) and Dr. Jane Bailey’s (2021 awardee) Leadership Development Grant experience, now named the Dr. Ivy Dreizin Leadership Development Grant. We look forward to reconnecting with our friends and colleagues in a social networking activity and hosting games with prizes.

2:30 pm – 4:30 pm

Vestibular and Ocular Motor Skills Transfer [2.0]

Moderator: Dan Gold, DO
Facilitators: Shannon Beres, MD, Anthony Brune, DO, Marc Dinkin, MD, Eric Eggenberger, DO, MSEpi, Caroline Froment, MD, PhD, Kesar Green, DO, Scott N. Grossman, MD, Nicholas E. F. Hać, MD, David E. Hale, MD, Jorge Kattah, MD, Mark Morrow, MD, Sashank Prasad, MD, and Veeral Shah, MD, PhD

This symposium will provide a practical ocular motor/vestibular hands-on experience. With the help of roughly 18 NANOS members with expertise in the field, there will be 6 stations for the following: VOR testing, Positional Testing of Posterior Semicircular Canals, Positional Testing of Horizontal Semicircular Canals, Provocative Testing (nystagmus elicitation), Gaze Testing (ocular alignment, saccades, smooth ocular pursuit, and smooth eye-head tracking), and Nystagmus Interpretation.

Upon completion of this symposium, learners should be able to: (1) perform the HINTS exam (head impulse [VOR], nystagmus [naming and interpretation], test of skew [alignment]), (2) perform other ocular motor (saccades, pursuit, eye-head tracking) and provocative testing (head-shaking) to aid in localization, (3) apply the diagnostic Dix-Hallpike and supine roll positional maneuvers with proper technique, and (4) implement the most appropriate therapeutic maneuver.

4:45 pm – 5:45 pm

Consortium of Pediatric Neuro-Ophthalmologists (CPNO)

All are welcome to attend!
Facilitators: Shannon Beres, MD and Gena Heidary, MD, PhD

6:30 pm – 12:00 am

Banquet

Put on your best Western attire and join us for a fun night of celebration! Dinner and awards from 6:30 - 8:00 pm. Music and dancing to begin at 8:00 pm. Group line dancing performances are encouraged! We will also have a photo booth with props so you can take home a memento from the evening. Guest tickets are available for purchase at $150 with online registration or onsite.
This symposium will clarify the definition of functional neurologic disorder (FND) and explore how it may present to a neuro-ophthalmologist. FND, previously known as “conversion disorder”, can include a constellation of symptoms, including sensory symptoms, fatigue states, change in mental status, movement disorders, as well as seizure. It is a separate entity from malingering, in which patients knowingly feign symptomatic illness. Treatment of FND usually necessitates a multidisciplinary team approach of physicians in neurology, psychiatry, and physical therapists. We will review the condition, treatment recommendations, and the differential diagnosis of this complicated disorder.

Upon completion of this symposium, learners should be able to: (1) understand the etiology of FND and how it differs from malingering, (2) establish a broad differential diagnosis and ensure accuracy in making a diagnosis of FND, and (3) increase awareness of treatments for FND.

This symposium will examine pitfalls in management and diagnosis to be avoided in pediatric neuro-ophthalmology through a case-based format. Eight clinical cases will be presented with a focus on arriving at the correct diagnosis and evidence based best practices with respect to treatment and management of pediatric neuro-ophthalmic disease.

Upon completion of this symposium, learners should be able to (1) recognize common errors in diagnosis in pediatric neuro-ophthalmic disease and (2) apply most up to date evidence towards best practices in treatment and management of pediatric neuro-ophthalmic disease.
NANOS would like to thank the following Supporters.

NANOS TOP SUPPORTERS

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$60,000

GOLD

Viridian Therapeutics, Inc.
$25,000

Catalyst Pharmaceuticals, Inc.
$15,000

GenSight Biologics
$15,000

SILVER

2022 EXHIBITORS:

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Diagnosys LLC
M&S Technologies
Medi Lazer
Nextech
Novarts
Optomed USA
PTC Therapeutics
Soleo Health

EDUCATIONAL GRANTS

This activity is supported by a grant from Horizon Therapeutics.

GLASER SOCIETY $5,000 - $9,999
- Susan Benes, MD (In memoriam of Jane Sargent, MD; Ivy Dreizin, MD and Thomas J. Carlow, MD)
- Preston Calvert, MD (In honor of Neil R. Miller, MD)
- Ivy and Fred Dreizin, MD

WIRTSCHAFTER CLUB $1,000 - $2,499
- Petras and Liuda Avizonis (In memoriam of Thomas J. Carlow, MD)
- Department of Ophthalmology and Visual Sciences, University of New Mexico (In memoriam of Thomas J. Carlow, MD)
- Kathleen Digre, MD (In memoriam of Thomas J. Carlow, MD and Ivy Dreizin, MD)
- Diane and Steven Feldon, MD (In memoriam of Thomas J. Carlow, MD)
- Edmond FitzGibbon, MD
- Deborah Friedman, MD (In memoriam of Jane Sargent, MD and Ivy Dreizin, MD)
- Benjamin Frishberg, MD (In memoriam of Thomas J. Carlow, MD)
- Steven Hamilton, MD (In memoriam of Thomas J. Carlow, MD and Simmons Lessell, MD)
- Naftish Hashemi, MD (In honor of Andrew G. Lee, MD)
- Gerard Herschew, DO (In memoriam of Thomas J. Carlow, MD)
- John Kelther, MD (In memoriam of Thomas J. Carlow, MD)
- Leah Levi, MD (In memoriam of Thomas J. Carlow, MD and Ivy Dreizin, MD; In honor of Susan Carlow and all the women leaders in NANOS)
- Patricia McNussen, MD (In memoriam of Thomas J. Carlow, MD and Ivy Dreizin, MD; In honor of Susan Carlow)
- Nancy Newman, MD and Valerie Bisouss, MD (In memoriam of Simmons Lessell, MD)
- Stephen Pollock, MD
- Valerie Purvin, MD
- Peter Quinza, MD
- Carol and William Shults, MD (In memoriam of Thomas J. Carlow, MD; In honor of Susan Carlow)
- Prem Subramaniam, MD, PhD (In honor of Neil R. Miller, MD)
- Sharon Tow, MD (In honor of Neil R. Miller, MD)

AVERBUCH-HELLER GUILD $500 - $999
- Nadyne and Joseph Bicknell (In memoriam of Thomas J. Carlow, MD)
- Chantal Boisvert, MD
- John Chen, MD, PhD
- Sarita Dave, MD
- Kathleen Digre, MD and Michael Varner (In memoriam of Thomas J. Carlow, MD)
- Edmond FitzGibbon, MD (In memoriam of Thomas J. Carlow, MD)
- Christopher Glisson, DO
- Lynn Gordon, MD, PhD
- Sachin Kedar, MD (In honor of James Corbett, MD)
- Andrew Lee, MD
- Roy Meckler, MD
- Heather Moss, MD, PhD (In memoriam of Ivy Dreizin, MD; Jane Sargent, MD and Jane Portnoy, MD)
- Victoria Pekel, MD
- Sashank Prasad, MD
- Barry Skarf, MD, PhD
- Friedel Warren, MD
- Charles Winkelman, MD

HEDGES CLUB $250 - $499
- Bause Family (In memoriam of Thomas J. Carlow, MD; In honor of Susan Carlow)
- David Bellows, MD, FACS
- Joseph Chacko, MD (In memoriam of Ivy Dreizin, MD)
- James Datoovech (In honor of Heather Mass, MD, PhD)
- Emily Davis (In memoriam of Thomas J. Carlow, MD)
- Eye Associates of New Mexico (In memoriam of Thomas J. Carlow, MD)
- Jay K. Johnson, DO (In memoriam of Thomas J. Carlow, MD)
- Sangeeta Khanna, MD (In memoriam of Ivy Dreizin, MD)
- Mario and Aja Kornfeld, MD (In memoriam of Thomas J. Carlow, MD)
- Jacqueline Leavitt Stafford, MD (In memoriam of Thomas J. Carlow, MD and Ivy Dreizin, MD)
- Brien Mack (In memoriam of Thomas J. Carlow, MD)
- Edward McPhillips (In memoriam of Mickey McPhillips)
- Fawzi Mokhtari, MD
- Jane and Don Seelinger, MD (In memoriam of Thomas J. Carlow, MD)
- Richard Selbst, MD, FAAN (In honor of John Selhorst, MD; FAAN; In memoriam of Thomas J. Carlow, MD)
- Seema Sundaram, MD, FRCS
- Agnieszka Wong, MD
- Barbara Yates, MD

ZARET SOCIETY $100 - $249
- Chris Albanis, MD (In honor of Jeffrey Nichols, MD; In memoriam of Peter Nichols)
- Adelia Alzati, MD
- Douglas Barrett, MD (In memoriam of Thomas J. Carlow, MD)
- Andrew Berman, MD (In memoriam of Ivy Dreizin, MD)
- Jeff Collins (In memoriam of Thomas J. Carlow, MD)
- Wayne Cornblath, MD (In memoriam of Thomas J. Carlow, MD)
- Michael D'Imonas, DO (In memoriam of Thomas J. Carlow, MD)
- Larry Frohman, MD (In memoriam of Thomas J. Carlow, MD)
- Art Gardeniartz (In memoriam of Thomas J. Carlow, MD)
- Hong Jiang, MD, PhD
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- Mina Jo and Michael Linver, MD (In memoriam of Thomas J. Carlow, MD)
- Nancy Lombardo, MD
- John and Karen Mack (In memoriam of Thomas J. Carlow, MD)
- Mark Malton, MD
- Collin McClelland, MD (In honor of Sophia Chung, MD)
- Sarah McElvaney (In memoriam of Thomas J. Carlow, MD)
- Mark Morrow, MD
- Kannan Narayana, MD
- Anil Patel, MD
- Victoria Pekel, MD (In memoriam of Thomas J. Carlow, MD; In honor of Susan Carlow)
- David Schlerf (In memoriam of Thomas J. Carlow, MD; In honor of Pamela Carlow)
- Richard Sogg, MD (In memoriam of Jane Sargent, MD)
- Paul Turner, MD (In memoriam of Thomas J. Carlow, MD)
- Charlotte and Jim Walder (In memoriam of Thomas J. Carlow, MD)
- Kimberly Winges, MD (In memoriam of Ivy Dreizin, MD; In honor of all my female NANOS mentors)
- Luiz Zilgar

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SOCIAL FUNCTIONS

RECEPTIONS AND ENTERTAINMENT

SATURDAY, FEBRUARY 12th

WELCOME RECEPTION
(with support from Viridian Therapeutics, Inc.)
Reconnect with your NANOS colleagues at the Welcome Reception on Saturday, February 12th from 6:00 - 9:30 pm. All attendees and guests are welcome at the reception from 6:00 - 7:30 pm followed by a line dancing lesson led by professionals from 7:30 - 9:30 pm. Heavy hors d’oeuvres provided at the reception.

SUNDAY, FEBRUARY 13th

MEMBERS IN TRAINING RECEPTION
All Students, Residents, and Fellows-in-Training are invited to this reception on Sunday, February 13th from 5:45 - 6:45 pm. This reception is a great opportunity to network and connect with NANOS leadership and Fellowship Directors as well as learn about neuro-ophthalmology fellowships.

This reception is for Students, Residents, Fellows-in-Training, NANOS Board of Directors members, Fellowship Directors, Student Clerkship, and Neurology and Ophthalmology Residency Directors

TUESDAY, FEBRUARY 15th

MEET THE POSTER AUTHOR: ANALYTICAL STUDIES RECEPTION
(with support from Viridian Therapeutics, Inc.)
Tuesday, February 15th from 6:30 - 8:30 pm. This is your chance to ask questions and learn more about the Analytical Studies posters. Heavy hors d’oeuvres buffet included. Guest tickets are available for purchase for $150 with online registration or onsite.

WEDNESDAY, FEBRUARY 16th

ANNUAL BANQUET
Put on your best Western attire and join us Wednesday, February 16th at 6:30 pm for a fun night of celebration! Dinner and awards from 6:30 - 8:00 pm. Music and dancing begin at 8:00 pm and group line dancing performances are encouraged! We will also have a photo booth with props so you can take home a memento from the evening. Guest tickets are available for purchase for $150 with online registration or onsite.
TOURS

TUESDAY, FEBRUARY 15th

A limited number of tours are available for NANOS attendees on Tuesday afternoon, February 15th. Scan the QR codes below to learn more and book the tour. The below tours will depart from the lobby of the JW Marriot Austin. Meet in the hotel lobby 15 minutes prior to tour start time. Tours are organized and managed by AO Tours Austin. Phone: 512-659-9478

AUSTIN ARTS AND ARCHITECTURE
1:30 – 4:00 pm

AUSTIN AND HILL COUNTRY WITH STOPS
2:00 – 4:30 pm

AUSTIN HILL COUNTRY NONSTOP 90-MINUTE TOUR
2:30 – 4:00 pm
<table>
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<th>EXHIBITORS</th>
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| **GenSight Biologics**  
www.gensight-biologics.com  
clinics@gensight-biologics.com  
+33 1 76 21 72 20  
GenSight Biologics is a biopharma company with headquarters in Paris, France, focused on developing and commercializing gene therapy-based treatments for retinal neurodegenerative diseases and central nervous system disorders. Its lead product, LUMEVOQ (GS010; lenadogene nolparvovec), has been submitted for approval in the European Union as a treatment for Leber Hereditary Optic Neuropathy (LHON) caused by a mutated ND4 mitochondrial gene. |
| **Horizon Therapeutics**  
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customerservice@horizontherapeutics.com  
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Horizon is focused on researching, developing and commercializing medicines that address critical needs for people impacted by rare and rheumatic diseases. Our pipeline is purposeful: we apply scientific expertise and courage to bring clinically meaningful therapies to patients. We believe science and compassion must work together to transform lives. |
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Catalyst Pharmaceuticals is a commercial-stage, patient-centric biopharmaceutical company focused on in-licensing, developing and commercializing novel high-quality medicines for patients living with rare diseases. With exceptional patient focus, Catalyst is committed to developing a robust pipeline of cutting-edge, first- or best-in-class medicines for other rare diseases. |
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| **Alexion, AstraZeneca Rare Disease**  
alexion.com  
475-230-2596  
Alexion, AstraZeneca Rare Disease, is the group within AstraZeneca focused on rare diseases, created following the 2021 acquisition of Alexion Pharmaceuticals, Inc. As a leader in rare diseases for nearly 30 years, Alexion is focused on serving patients and families affected by rare diseases and devastating conditions. Headquartered in Boston, Massachusetts, Alexion has offices around the globe and serves patients in more than 50 countries. |
Optomed USA
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844-474-4481

Optomed is a medical technology company and a leading provider of handheld fundus cameras for Neuro-Ophthalmology and ED applications. Optomed combines handheld fundus cameras with software and artificial intelligence with the aim to optimize the diagnostic process of visual disorders.

Benign Essential Blepharospasm Research Foundation
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Benign Essential Blepharospasm Research Foundation funds and promotes medical research for the cause and cure of blepharospasm and related disorders of the facial musculature; provides support, education and referrals to persons with these disorders; disseminates information and serves as an authoritative resource to the medical community and the general public.

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PTC Therapeutics is Measured By Moments - Bringing moments to patients with rare and serious diseases through innovative small molecule and gene therapies.

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EDUCATION: NANOS is the premier source of the Neuro-Ophthalmology education in North America.
• Discounted registration for the Annual Meeting offering up to 30 CME credits
• Access to past Annual Meeting materials
• Access to Neuro-Ophthalmology Curriculum on NOVEL

RESEARCH: NANOS provides annual subscription to the Journal of Neuro-Ophthalmology (JNO) and access to Neuro-Ophthalmology Virtual Education Library (NOVEL).
• Subscription to JNO
• Abstract submission and presentation opportunities
• Research Assistance Program
• Research Grant programs

NETWORKING AND PROFESSIONAL DEVELOPMENT: NANOS connects medical professionals who practice Neuro-Ophthalmology in their day-to-day clinical practice and provide opportunities for involvement on committees and the Board of Directors.
• Networking opportunities with fellow professionals
• Listing in the member directory
• Posting rights to the scientific discussion listservs, NANOSnet and YONOnet
• Leadership and volunteer opportunities on NANOS committees and the Board
• Voting rights
• Complimentary job postings and career planning tools

ADVOCACY: NANOS represents the interests of Neuro-Ophthalmologists in the AMA House of Delegates, collaborates with AAO and AAN, and tackles issues that impact the subspecialty.
• Representation in the AMA House of Delegates, with access to the AMA policy-making bodies to present a unified position on issues pertaining to Neuro-Ophthalmology
• Involvement in the process of creating guidelines for the performance of different Neuro-Ophthalmology procedures in the workup of patients with neuro-ophthalmic disorders
• Advocacy and counsel on Neuro-Ophthalmology issues
• Practice management tips and tools for Neuro-Ophthalmologists.

Visit www.nanosweb.org to become a member and get involved with NANOS today!

What do you treasure most in your NANOS membership?

Before joining NANOS, I thought of medicine as something which was an individual endeavor. Since being part of this organization, I recognize we work together to build our specialty and honor the traditions of those who have set the foundation. – John Pula

The opportunity to interact with a community that has a practice just like you and hence understands the complexity of care and that sometimes diagnosis is not straightforward. – A new member of NANOS

NANOS membership has provided me with unparalleled networking and career-advancement opportunities while providing resources that also benefit my clinical practice. I truly look forward to the annual meeting each year — it’s like a career family reunion! – Devin Mackay

NANOS connects neuro-ophthalmologists not only in North America but all over the world, and informs the members about the new developments by the JNO and Annual Meeting. It also helps to solve difficult and interesting cases by discussing them through the NANOSNET. I am proud of being a member of NANOS. – An International member of NANOS

I always find the annual meetings excellent. So nice to get CME hours that are relevant to what I do every day. – Marybeth Grazko
MAKING VISION RESTORATION A REALITY

GenSight Biologics seeks to transform the lives of patients with severe degenerative diseases of the eye and central nervous system with novel gene therapy-based treatments.

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NANOS JOURNAL

Journal of Neuro-Ophthalmology

The Official Journal of the North American Neuro-Ophthalmology Society

HTTPS://JOURNALS.LWW.COM/JNEURO-OPTHALMOLOGY
“You have to keep going. Don’t ever give up.”

GEOFF
Relapsing Multiple Sclerosis, USA

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To learn more, visit www.sanofimshcpresources.com or scan this code.
DEDICATED TO OUR PATIENTS

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Closely worked with nearly 40 charitable organizations in the MS therapeutic area in 2021.

ALWAYS LOOKING FORWARD

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SANOFI GENZYME
Horizon is proud to support NANOS 2022

Horizon is focused on researching, developing and commercializing medicines that address critical needs for people impacted by rare, autoimmune and severe inflammatory diseases. Our pipeline is purposeful: we apply scientific expertise and courage to bring clinically meaningful therapies to patients. At Horizon, we believe science and compassion must work together to transform lives.
Viridian Therapeutics is engineering medicines to advance patient care

And it starts with new treatments for Thyroid Eye Disease (TED)

Follow our journey. Scan to learn more about what’s coming up in our pipeline.

View our posters at NANOS: #332, 333, 334
SAVE THE DATES

FUTURE NANOS MEETINGS:

2023 49TH ANNUAL MEETING
NANOS
OMNI ORLANDO RESORT AT CHAMPIONSGATE, ORLANDO, FL
MARCH 11-16, 2023

2024 50TH ANNUAL MEETING
NANOS
SHERATON WAIKIKI, HONOLULU, HI
MARCH 2-7, 2024

2025 51ST ANNUAL MEETING
NANOS
JW MARRIOTT TUCSON STARR PASS, TUCSON, AZ
MARCH 15-20, 2025

For More Information:
www.nanosweb.org