

2021 ^{47TH} ANNUAL MEETING NANOS

VIRTUAL • FEBRUARY 20-23



NORTH AMERICAN NEURO-OPTHALMOLOGY SOCIETY

Welcome

HELLO! On behalf of the North American Neuro-Ophthalmology Society (NANOS), we are excited to welcome you to the 47th Annual Meeting, NANOS's first virtual meeting.

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 Program Committee has developed a spectacular program. This year's meeting covers many topics and features symposia on Tele-Neuro-Ophthalmology: Updates and Future Implications; Infectious Diseases in Neuro-Ophthalmology: It's Not Just COVID19; Journal Club: What You Need to Know Now!; TBI and the Neuro-Ophthalmologist; Cognitive Disorders and Vision; and Controversies in Pediatric Neuro-Ophthalmology. Neuro-Radiology Case Review symposium will be available on-demand. To accommodate the continual growth of high-quality abstract submissions, NANOS will host several virtual Poster Sessions that will include both Clinical Highlights and Scientific Advancement in Neuro-Ophthalmology. Our platform sessions will feature innovative scientific presentations.

The NANOS virtual meeting will allow you to:

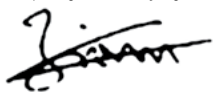
- Stay on top of neuro-ophthalmology education and cutting-edge research
- Network with NANOS colleagues and industry partners from around the globe
- Enjoy all content via On-Demand viewing until March 21st
- Earn CME credits at your convenience
- No Travel Required – enjoy this event from the comfort of your home or office.

We have prepared several networking and social events:

- Please join us for the virtual Welcome Reception on Saturday, February 20th, from 6:00-7:00 pm MST.
- Virtual Wine Tasting with Chat will be held on Sunday, February 21st, from 6:00-7:00 pm MST.
- NANOS Talent Show is another social event you do not want to miss. Remember to tune in on Monday, February 22nd, from 2:30-3:30 pm MST.
- YONO & WIN Hangout is scheduled for Monday, February 22nd from 5:00-7:00 pm MST.
- NANOS Awards Ceremony will conclude our meeting on Tuesday, February 23rd, from 6:00-7:00 pm MST.
- Be sure to attend the Business Meeting on Saturday, February 20th, at 5:30 pm MST. We will be providing a state of the Society update.

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 2021 NANOS Annual Meeting!



Valerie Biousse, MD
NANOS President

Table of Contents

How to Claim CME	4
NANOS 2021 Program	5
On-Demand	5
Saturday, February 20	5
Sunday, February 21	9
Monday, February 22	11
Tuesday, February 23	14
Additional On-Demand Content	17
NANOS 2021 Speakers and Moderators	18
Social Functions	19
Donations	21
Supporters and Exhibitors	22
NANOS Awards Ceremony Menu and Recipes	23

How to Claim CME

For the 2021 NANOS Annual Meeting.

Claiming CME is as easy as 1-2-3:

1. Access the NANOS 2021 Annual Meeting Evaluations by using the following link:
nanos2021.sur-sys.com
2. Complete the evaluation of sessions attended. The evaluation may be completed during the meeting or before April 1, 2021.
3. CME Certificates will be emailed by April 15th.

Total Annual Meeting Credits:

18.75 Credit(s)TM

ABPN Self-Assessment CME

The American Board of Psychiatry and Neurology has reviewed the NANOS 47th Annual Meeting and has approved this program as part of a comprehensive Self-Assessment(SA) program, which is mandated by the ABMS as a necessary component of Continuing Certification. Complete information regarding the ABPN Self-Assessment CME Maintenance of Certification requirements is available at www.abpn.com.

ABO Self-Assessment CME

Successful completion of this CME activity, which includes participation in the evaluation component, enables the learner to satisfy the Lifelong Learning, Self-Assessment, Improvement in Medical Practice and/or Patient Safety requirements 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. Complete information regarding the ABO Self-Assessment CME Maintenance of Certification requirements are available at www.abop.org.

NANOS 2021 Program

All times listed in Mountain Standard Time (MST).

► ON-DEMAND

1 hour

- Neuro-Radiology Case Review: Challenge Yourself with the Imaging Ddx [1.0 CME]
Nancy Fischbein, MD

This session is intended to be a supplemental case-based review of neuro-radiology pearls and pitfalls as they relate to imaging in neuro-ophthalmology. A particular focus of this session will be understanding the typical imaging sequences used in imaging of neuro-ophthalmological disorders, as well as gaining understanding of how certain newer imaging modalities (notably arterial spin label perfusion imaging) might be applied. As cases are presented, a focus will also be on working through an appropriate differential diagnosis and understanding why or why not a particular consideration in the differential diagnosis is a good fit.

Upon completion of this session, participants should be able to: (1) describe role of perfusion imaging in ophthalmology, (2) review physiology behind ASL perfusion imaging, and (3) utilize information from ASL perfusion in clinical decision-making.

► SATURDAY, FEBRUARY 20

**FEB
20**

All are encouraged to do yoga, view posters, on-demand content, and visit the exhibit hall at their leisure.

7:00 am – 7:45 am

- International Relations Committee Meeting

8:00 am – 8:04 am

- Welcome and Introduction
Valerie Biousse, MD and Prem S. Subramanian, MD, PhD

8:04 am – 9:15 am

► Tele-Neuro-Ophthalmology: Updates and Future Implications [1.25 CME]

Moderators: Melissa W. Ko, MD, FAAN, CPE and Kevin Lai, MD

8:04 am – 8:16 am	What Did We Learn From COVID-19? Tele-Neuro-Ophthalmology Adoption During A Pandemic, <i>Melissa W. Ko, MD, FAAN, CPE</i>
8:16 am – 8:26 am	Telemedicine as a Practice Model, <i>Aubrey Gilbert, MD, PhD</i>
8:26 am – 8:40 am	Practical Telemedicine: Tips for Video Visits, <i>Heather E. Moss, MD, PhD</i>
8:40 am – 8:52 am	Practical Telemedicine: Validated Mobile Apps, <i>Linus Sun, MD, PhD</i>
8:52 am – 9:02 am	Coding Updates in Telemedicine Use, <i>Kevin Lai, MD</i>
9:02 am – 9:15 am	Panel discussion / Q&A session (LIVE with chat)

Telemedicine in neuro-ophthalmology has exponentially grown in adoption in the past year, largely due to the unprecedented changes to medical care necessitated by the COVID-19 pandemic. In this expert panel presentation with Q&A, we will review how telemedicine has impacted neuro-ophthalmology in the COVID era, reflect on the experiences of advantages and pitfalls of using telemedicine for the evaluation and management of neuro-ophthalmic disease, offer practical strategies and resources for the implementation of telemedicine, update attendees on billing and coding in telemedicine, and explore future applications of telemedicine in neuro-ophthalmic care.

Upon completion of this session, participants should be able to: (1) enumerate advantages and pitfalls to telemedicine in clinical practice, and (2) demonstrate clinical examination techniques in telemedicine, and (3) envision practical methods of incorporating telemedicine into individual neuro-ophthalmology practice.

9:15 am – 9:45 am

► Break

9:45 am – 2:10 pm

► Frank B. Walsh (I & II)

Host: Stanford University - Y. Joyce Liao, MD, PhD

Committee members: Shannon Beres, MD and Heather E. Moss, MD, PhD

Neuro-radiologist: Nancy Fischbein, MD

Neuro-pathologist: Raymond Sobel, MD

Ophthalmic-Genetics: Vinit B. Mahajan, MD, PhD

Frank Walsh (I) [2.0]

9:45 am – 10:00 am	Welcome/Introduction
10:00 am – 10:20 am	A 4-Year Wait, <i>Dmitry Balian, MD</i>
10:20 am – 10:40 am	Never Too Young or Too Old, <i>Bart K. Chwalisz, MD</i>
10:40 am – 11:00 am	"X" Marks the Spot, <i>Luis Andre Leal Ferman, MD, FRCPC</i>
11:00 am – 11:20 am	Sometimes a Biopsy is Best, <i>Kevin D. Chodnicki, MD</i>
11:20 am – 11:40 am	Frizzle Frazzled, <i>Eric D. Gaier, MD, PhD</i>
11:40 am – 11:45 am	Wrap-Up

11:45 am – 12:15 pm | Break

Frank Walsh (II) [2.0]

12:15 pm – 12:35 pm	A Definite Maybe, <i>Raghu C. Mudumbai, MD</i>
12:35 pm – 12:55 pm	A Small Leak Will Sink a Great Ship, <i>Konstantinos Douglas, MD, DVM, MBA</i>
12:55 pm – 1:15 pm	Oh My GAD!! Something Else? <i>Olwen C. Murphy, MBBCh, MRCPI</i>
1:15 pm – 1:35 pm	Orbiting a Diagnosis, <i>Daniel L. Liebman, MD, MBA</i>
1:35 pm – 1:55 pm	Gone but Not Forgotten, <i>Jonathan A. Micieli, MD</i>
1:55 pm – 2:05 pm	Wrap Up
2:05 pm – 2:10 pm	Closing

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 to neuro-ophthalmology.

3:00 pm – 4:00 pm

- Walsh Committee Meeting

4:30 pm – 5:30 pm

- Poster Chat Session I (Posters 1-68)

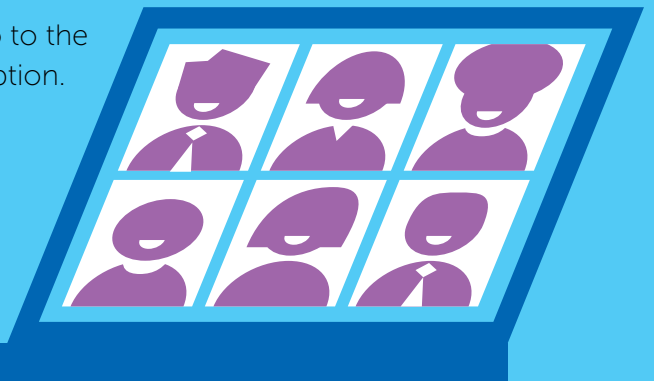
5:30 pm – 6:00 pm

- Business Meeting

6:00 pm – 7:00 pm

- Welcome Reception

Join us in Gather Town for an interactive reception. Go to the Auditorium and click “Join” next to the Welcome Reception. Gather Town is a video-calling space that lets multiple people hold separate conversations in parallel, walking in and out of those conversations just as easily as you would at an in-person reception. We look forward to seeing you there!



► SUNDAY, FEBRUARY 21

**FEB
21**

All are encouraged to do yoga, view posters, on-demand content, and visit the exhibit hall at their leisure.

8:00 am – 10:00 am

► Infectious Diseases in Neuro-Ophthalmology: It's Not Just COVID-19 [2.0 CME]

Moderators: Jeffrey Bennett, MD, PhD and Beau Bruce, MD, PhD

8:00 am – 8:23 am	COVID-19 and the Eye and Brain, <i>Marc Dinkin, MD</i>
8:23 am – 8:42 am	Immunosuppressive Therapy in the Setting of Infectious Risk, <i>Lindsey De Lott, MD, MS</i>
8:42 am – 9:01 am	Infectious Optic Neuropathies: What Should I Do Differently? <i>Lynn Gordon, MD, PhD</i>
9:01 am – 9:20 am	The Rise of Old Diseases: Syphilis and More, <i>Guy Jirawuthiworavong, MD, MA</i>
9:20 am – 9:40 am	Preparing for the Worst: Botulism - National Surveillance, Emergency Response, and Bioterrorism Preparedness, <i>Beau Bruce, MD, PhD</i>
9:40 am – 10:00 am	Q&A

A variety of infectious agents cause important neuro-ophthalmic disease. Some are old favorites, like syphilis, some are novel and emerging, like COVID-19, and some could even be used as weapons, like botulism. Infectious diseases are commonly on the differential diagnosis with inflammatory etiologies that are best treated with immunosuppressive agents, complicating potential management plans.

Upon completion of this session, participants should be able to: (1) describe the features of multiple neuro-ophthalmic diseases caused by infectious agents, (2) describe management strategies that involve the use of immunosuppressive agents in the setting of known or possible infectious disease, and (3) describe national surveillance and bioterrorism preparedness for botulism.

10:00 am – 10:15 am

► Break

10:15 am – 12:15 pm

► Journal Club: What You Need to Know Now! [2.0 CME]

Moderators: Sophia Chung, MD and Kimberly Winges, MD

10:15 am – 10:30 am	OCTA: What Can it Tell Me and How to Use It, <i>Anthony Arnold, MD</i>
10:30 am – 10:45 am	AI in Neuro-Ophthalmology: What the Future Holds, <i>Dan Milea, MD, PhD</i>
10:45 am – 10:53 am	Artificial Intelligence Reveals Disease-Specific Quantifiable Visual Field Defects in Idiopathic Intracranial Hypertension, <i>Hiten A. Doshi, BS</i>
10:53 am – 11:08 am	Newest Immunotherapies in NMO: Which One to Choose? <i>Jeffrey Bennett, MD, PhD</i>
11:08 am – 11:16 am	Archetypal Analysis Identifies Quantifiable Visual Field Loss Patterns and Predictors of Recovery in Optic Neuritis, <i>Elena Solli, MD</i>
11:16 am – 11:31 am	Treatment of Intracranial Hypertension: New Options or Not? <i>Julie Falardeau, MD</i>
11:31 am – 11:39 am	Effect of Prostaglandin Analogs on Cerebrospinal Fluid Reabsorption Via Nasal Mucosa, <i>Prem S. Subramanian, MD, PhD</i>
11:39 am – 11:54 am	Optic Disc Drusen: Insights on Diagnosis, <i>Clare Fraser, FRANZCO</i>
11:54 am – 12:15 pm	Q&A

Everchanging technology affords the continued opportunity to new approaches to evaluation, diagnosis, and treatment strategies. Furthermore, application of artificial intelligence (AI) on big data is one of the most influential revolutions in information technology. In this symposium, we will review current applications of AI in neuro-ophthalmology, advances and diagnostic utility of OCTA, new diagnostic techniques for optic disc drusen, and conclude with novel and current management of two critically important neuro-ophthalmic conditions, NMO and IIH.

Upon completion of this session, participants should be able to: (1) define AI in neuro-ophthalmology, current use, and future impact to create algorithms and make clinical decisions from individual practices to global medicine, (2) discuss clinical applications of OCTA in neuro-ophthalmology, (3) Identify new advances in the diagnosis of optic disc drusen, (4) describe new immunotherapies in NMO, and (5) summarize and evaluate new medical and surgical treatments in IIH.

1:00 pm – 2:00 pm

► Poster Chat Session II (Posters 69-106)

2:00 pm – 2:50 pm

► TEPEZZA® (teprotumumab-trbw): A Breakthrough Medicine

Kimberly Cockerham, MD, FACS

This symposium is organized by Horizon Therapeutics. Please join us for a virtual discussion on TED and Tepezza. This presentation is intended for US-based healthcare professionals.

3:30 pm – 4:30 pm

► Fellowship Committee Meeting

6:00 pm – 7:00 pm

► Virtual Wine Tasting with Chat

Join us as NANOS members lead us through tastings of some of their favorite wines and regions. We'll enjoy a selection of sparkling, white and red wines and learn about the different varietals and regions. *Hosted by Drs. Deborah Friedman and Lynn Gordon.*



► MONDAY, FEBRUARY 22

**FEB
22**

All are encouraged to do yoga, view posters, on-demand content, and visit the exhibit hall at their leisure

7:30 am – 8:30 am

► Poster Chat Session III (Posters 107-148)

8:30 am – 10:00 am

► Scientific Platform Session I [1.5 CME]

Moderators: Nagham Al-Zubidi, MD and Ruth Huna-Baron, MD

8:30 am – 8:38 am	Two-Year Follow-Up of the Prospective Outcomes Study of Pediatric Optic Neuritis, <i>Stacy L. Pineles, MD</i>
8:38 am – 8:46 am	The MICK (Mobile Integrated Cognitive Kit) App: Digital Rapid Automatized Naming for Diagnosis of mTBI, <i>Scott N. Grossman, MD</i>
8:46 am – 8:54 am	Teprotumumab Efficacy in Retreatment and Longer-Term Thyroid Eye Disease: OPTIC-X Study Results, <i>Raymond S. Douglas, MD, PhD</i>
8:54 am – 9:02 am	Frequency of Carotid Intraplaque Hemorrhage on Vessel Wall Imaging in Patients with Retinal Artery Occlusion, <i>Anthony Larson, BS</i>
9:02 am – 9:10 am	Acute Central Retinal Artery Occlusion Seen Within 24 Hours at a Tertiary Stroke Center, <i>Wesley Chan, MD, MSc</i>
9:10 am – 9:18 am	Pathogenic NR2F1 Variants Cause a Systemic Neurodevelopmental Ocular Phenotype Recapitulated in a Mutant Mouse Model, <i>Neringa Jurkute, MD, FEBO</i>
9:18 am – 9:26 am	Decreased Vision in Multiple Sclerosis is Associated With Novel Foveal Features Visualized Using Adaptive Optics, <i>Aubrey C. Hargrave, PhD</i>
9:26 am – 10:00 am	Q&A

10:00 am – 10:15 am

► Break

10:15 am – 12:15 pm

► TBI and the Neuro-Ophthalmologist [2.0 CME]

Moderators: Laura Balcer, MD, MSCE and Courtney Francis, MD

10:15 am – 10:45 am	Mechanism, Diagnosis and Classification of TBI, <i>James Kelly, MD</i>
10:45 am – 10:58 am	Afferent Symptoms and Signs, <i>Randy Kardon, MD, PhD</i>
10:58 am – 11:11 am	Efferent Symptoms and Signs, <i>Janet Rucker, MD</i>
11:11 am – 11:27 am	Dizziness and TBI: What's the Connection? <i>Dan Gold, DO</i>
11:27 am – 11:47 am	TBI Rehabilitation, <i>James Kelly, MD</i>
11:47 am – 12:00 pm	Medicolegal Issues in TBI, <i>Craig Smith, MD</i>
12:00 pm – 12:15 pm	Q&A

This session will demonstrate for the neuro-ophthalmologist mechanisms underlying traumatic brain injury (TBI), enumerate the afferent and efferent visual signs and symptoms, and impart knowledge regarding the characteristics of dizziness in the TBI setting. The roles for rehabilitation techniques will also be addressed, as will potential medicolegal issues associated with this condition.

Upon completion of this session, participants should be able to: (1) utilize increased knowledge of the most common afferent and efferent neuro-ophthalmologic signs and symptoms of TBI, (2) use history and examination skills to capture symptoms and signs associated with dizziness in TBI, and (3) demonstrate improved awareness and use of rehabilitation techniques for treatment of neuro-ophthalmologic signs and symptoms of TBI.

12:15 pm – 12:45 pm

► Break

12:45 pm – 2:15 pm

► Scientific Platform Session II [1.5 CME]

Moderators: Susan Mollan, FRCOphth and Kenneth Shindler, MD, PhD

12:45 pm – 12:53 pm	Efficacy of Visual Retraining in Hemianopic Fields After Stroke: Results of a Randomized Clinical Trial, <i>Matthew R. Cavanaugh, PhD</i>
12:53 pm – 1:01 pm	Ectopic Melanopsin for Visual Restoration: Compressed Cell-Specific Promoters – a Translatable Delivery Mechanism, <i>Michael James Gilhooley, MA, MB, Bchir, PhD, FRCOphth</i>
1:01 pm – 1:09 pm	Assessment of rAAV2/2-ND4 Gene Therapy Efficacy in LHON Using an External Control Group, <i>Nancy J. Newman, MD</i>
1:09 pm – 1:18 pm	Leber's Hereditary Optic Neuropathy in Women, <i>Giulia Amore, MD</i>
1:18 pm – 1:26 pm	Patient Harm from Diagnostic Error of Neuro-Ophthalmologic Conditions, <i>Leanne Stunkel, MD</i>
1:26 pm – 1:34 pm	Significance of Incidental Imaging Signs of Intracranial Hypertension with Corresponding Fundus Photography: A Prospective Study, <i>Benjamin I. Meyer, BS</i>
1:34 pm – 1:42 pm	Masked Analysis of the Clinical Utility of Commercially Available Antiretinal and Anti-Optic Nerve Antibody Testing, <i>John J. Chen, MD, PhD</i>
1:42 pm – 2:15 pm	Q&A

2:15 pm – 2:30 pm

► Break

2:30 pm – 3:30 pm

► NANOS Talent Show

Neuro-ophthalmologists have a lot of superpowers that will be revealed during the NANOS Talent Show taking place live. Creativity, smiles, and enjoyment are guaranteed. *NANOS's Got Talent is hosted by Drs. Melissa W. Ko & Peter Quiros. Join in the fun!*



5:00 pm – 7:00 pm

► WIN/YONO Hangout

5:00 pm – 5:30 pm	WIN - Reflections and WINdows of Opportunities, <i>Moderators: Madhura Tamhankar, MD and Barbara Yates, MD. Panelists: Lynn Gordon, MD, PhD, Hong Jiang, MD, PhD, Sangeeta Khanna, MD, Melissa W. Ko, MD, FAAN, CPE, and Heather E. Moss, MD, PhD</i>
5:45 pm – 5:47 pm	YONO - Welcome/Introduction
5:47 pm – 5:52 pm	YONO - Choosing Career Path(s)- Ophthalmology vs. Neurology Residency. <i>Moderator: Leanne Stunkel, MD. Panelists: Zeeshan Haq, MD, Nailyn Rasool, MD, and Jeremy Tanner, MD, MPH</i>
5:52 pm – 5:57 pm	YONO - Neuro-Ophthalmology and Surgery. <i>Moderator: Andrew Melson, MD. Panelists: Kevin Lai, MD, Collin McClelland, MD, and Prem S. Subramanian, MD, PhD</i>
5:57 pm – 6:02 pm	YONO - Combining Multiple Neurology Sub-Specialties Into Your Practice. <i>Moderator: Leanne Stunkel, MD. Panelists: Fiona Costello, MD, FRCPC, Nathan Kung, MD, and Stacy V. Smith, MD</i>
6:02 pm – 6:07 pm	YONO - Career Pathways in Neuro-Ophthalmology – Research/Clinical/Program Director/Education/Industry. <i>Moderator: Melinda Chang, MD. Panelists: Aubrey Gilbert, MD, PhD, Melissa W. Ko, MD, and Peter Quiros, MD</i>
6:07 pm – 6:12 pm	YONO - First Year in Practice: What I Wish I Would Have Known. <i>Moderator: Allison Liu, MD, PhD. Panelists: Melinda Chang, MD, Lauren Ditta, MD, Kimberly Gokoffski, MD, PhD, and Andrew Melson, MD</i>
6:12 pm – 6:15 pm	Closing

Join your colleagues for networking in Gather Town in between sessions from 5:00 pm – 7:00 pm. Login details will be published in the Auditorium event listing.

7:15 pm – 8:15 pm

► Abstract Committee Meeting

► TUESDAY, FEBRUARY 23

**FEB
23**

All are encouraged to do yoga, view posters, on-demand content, and visit the exhibit hall at their leisure

8:00 am – 10:00 am

► Cognitive Disorders and Vision [2.0 CME]

Moderators: Victoria S. Pelak, MD and Sashank Prasad, MD

8:00 am – 8:20 am	Classifying Disorders of Higher-Order Visual Processing, <i>Jason Barton, MD, PhD, FRCPC</i>
8:20 am – 8:35 am	Alzheimer's Disease, Parkinson's Disease, Lewy Body Dementia, and Posterior Cortical Atrophy Syndrome: Distinguishing Visual Features, <i>Victoria S. Pelak, MD</i>
8:35 am – 8:50 am	Advances in Neuroimaging: New Diagnostic Clues? <i>Sashank Prasad, MD</i>
8:50 am – 9:05 am	Use of Ophthalmic Imaging as a Biomarker, <i>Hong Jiang, MD, PhD</i>
9:05 am – 9:45 am	Treating Form, Time and Space: e-Therapies for Acquired Disorders of Reading, <i>Alexander Leff, MBBS, PhD, FRCP</i>
9:45 am – 10:00 am	Q&A

Cognitive visual disorders result from some of the most common diseases of aging that we encounter, including cerebrovascular and neurodegenerative diseases. This session will review the classification of higher order visual processing, pertinent visual features for common neurodegenerative diseases (i.e. Alzheimer's disease, Parkinson's disease, and Lewy Body Dementia), advances that have been made in neuroimaging related to cognitive visual dysfunction, and the future of ophthalmic imaging as a biomarker for diseases impacting visual cognition.

Upon completion of this session, participants should be able to: (1) identify and list higher order visual processing disorders, their associated clinical anatomy and the differential diagnosis, (2) understand available imaging tools to aid in the diagnosis of visual cognitive dysfunction, and (3) provide treatment strategies and management recommendations for visual cognitive dysfunction, specifically acquired disorders for reading.

10:00 am – 10:30 am

► Break

10:30 am – 12:00 pm

► Controversies in Pediatric Neuro-Ophthalmology [1.5 CME]

Moderators: Grant Liu, MD and Paul H. Phillips, MD

10:30 am – 10:48 am	Monitoring Children on Vigabatrin - ERG versus No ERG with Clinical Follow-Up. ERG Beneficial, <i>Steven F. Stasheff, MD, PhD</i> . ERG Not Beneficial, <i>Michael Wan, MD, FRCSC</i> . Q&A (live)
10:48 am – 11:06 am	Work-Up of Children with Isolated Optic Neuritis. MOG/NMO/LP On All, or Some Focused Work-Up, <i>Jason Peragallo, MD</i> . Extensive Work-Up, <i>Jennifer Graves, MD, PhD, MAS</i> . Q&A (live)
11:06 am – 11:24am	Evaluation of Child with Full Optic Disc - Role of Imaging in Distinguishing Pseudopapilledema versus Real Papilledema – (Role of Ultrasound, OCT, FA). OCT is Useful/Primary, <i>Mays El-Dairi, MD</i> . OCT is Not Useful (Try Something Else), <i>Stacy L. Pineles, MD</i> . Q&A (live)
11:24 am – 11:42 am	Evaluation for Optic Pathway Glioma. OCT Should Guide Clinical Decision Making, <i>Shannon Beres, MD</i> . OCT Does Not Guide Clinical Decision Making, <i>Robert Avery, DO</i> . Q&A (live)
11:42 am – 12:00 pm	Diagnostic Work-Up of a Child with Nystagmus - ERG? Image? Genetic Testing? Genetic Testing Before or After ERG? Work-Up for Underlying Etiology Which May Include ERG and Genetic Testing, <i>Gena Heidary, MD, PhD</i> . Observe Without Further Work-up If Otherwise Neurologically Normal, <i>Mark Borchert, MD</i> . Q&A (live)

The management of pediatric neuro-ophthalmologic patients is often controversial. As many pediatric neuro-ophthalmologic conditions are uncommon, sufficient data is often unavailable to provide definitive evidence-based guidelines for diagnostic evaluation and treatment. This symposium will review controversies regarding the management of various pediatric neuro-ophthalmologic entities including papilledema, optic neuritis, vigabatrin toxicity, optic pathway gliomas, and infantile nystagmus syndrome.

Upon completion of this session, participants should be able to: (1) understand which tests are required for the diagnosis of various pediatric neuro-ophthalmologic entities, (2) understand the interpretation of tests that are required for the diagnosis of various pediatric neuro-ophthalmologic entities, and (3) understand the limitations of tests that are required for the diagnosis of various pediatric neuro-ophthalmologic entities.

1:00 pm – 2:00 pm

► Poster Chat Session IV (Posters 149-220)

2:00 pm – 3:00 pm

- Neuromyelitis Optica Spectrum Disorder: Applying Newer Diagnostic Criteria and Examining Expanding Options for Treatment

2:00 pm – 2:05 pm	Introduction, <i>Prem S. Subramanian, MD, PhD</i>
2:05 pm – 2:25 pm	NMOSD: Discussing a Rare and Difficult Diagnosis, <i>Patricia K. Coyle, MD, FAAN, FANA</i>
2:25 pm – 2:45 pm	Assessing New Evidence in Prevention and Treatment of Acute NMOSD Attacks, <i>Prem S. Subramanian, MD, PhD</i>
2:45 pm – 3:00 pm	Q&A

This continuing medical education activity is provided by Vindico Medical Education. This activity is supported by an educational grant from Genentech, a member of the Roche Group.

Neuromyelitis optica spectrum disorder (NMOSD) is a rare, relapsing, autoimmune disease that is characterized by inflammation in the optic nerve and spinal cord. Diagnosing NMOSD is challenging, but diagnostic criteria—based on the presence of core clinical characteristics, aquaporin-4 (AQP4) antibody status, and magnetic resonance imaging—have been developed that allows for a differential diagnosis from other inflammatory disorders of the central nervous system. Treatment options for NMOSD have been historically limited, until recently—when the US Food and Drug Administration approved 3 novel therapies for the treatment and prevention of NMOSD attacks. Further therapies are currently under clinical review for the same indication. These approved and emerging therapies are changing the treatment paradigm for NMOSD, providing enhanced clinical outcomes for these patients. Within this CME activity, experts in the field will summarize evidence-based diagnostic criteria and best practices that assist in the differential diagnosis of NMOSD, as well as assess the efficacy of conventional and emerging therapies for the treatment and prevention of NMOSD attacks.

Upon successful completion of this activity, participants will be able to: (1) Summarize evidence-based diagnostic criteria and best practices that assist in the differential diagnosis of NMOSD, and (2) assess the efficacy of conventional and emerging therapies for the treatment and prevention of NMOSD attacks.

3:00 pm – 4:00 pm

- CME Committee Meeting

4:00 pm – 5:00 pm

- Consortium of Pediatric Neuro-Ophthalmologists Meeting (CPNO)

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

6:00 pm – 7:00 pm

► Awards Ceremony

Celebrate with us as we recognize the 2021 award winners! Tune in as we announce the winners of the NANOS talent show, recipients of the Pilot Grant and Leadership grant, 2021 Merit Award winner, Best Abstract awards, Best Frank B. Walsh Paper Presentation by a Fellow, Young Investigator Award, and much more! Dr. Larry Frohman has prepared an excellent [menu](#) for you to prepare at home.



► ADDITIONAL ON-DEMAND CONTENT

Welcome Reception Margarita

Peter Quiros, MD

NOVEL Update

Kathleen Digre, MD

JNO Update

Laura Balcer, MD, MSCE

Morning Yoga

Peter Quiros, MD

YONO - Choosing Career Path(s)- Ophthalmology vs. Neurology Residency

Moderator: Leanne Stunkel, MD

Panelists: Zeeshan Haq, MD, Nailyn Rasool, MD, and Jeremy Tanner, MD, MPH

YONO - Neuro-Ophthalmology and Surgery

Moderator: Andrew Melson, MD

Panelists: Kevin Lai, MD, Collin McClelland, MD, and Prem S. Subramanian, MD, PhD

YONO - Combining Multiple Neurology Sub-Specialties Into Your Practice

Moderator: Leanne Stunkel, MD

Panelists: Fiona Costello, MD, FRCPC, Nathan Kung, MD, and Stacy V. Smith, MD

YONO - Career Pathways in Neuro- Ophthalmology - Research/Clinical/ Program Director /Education/Industry

Moderator: Melinda Chang, MD

Panelists: Aubrey Gilbert, MD, PhD, Melissa W. Ko, MD, and Peter Quiros, MD

YONO - First Year in Practice: What I Wish I Would Have Known

Moderator: Allison Liu, MD, PhD

Panelists: Melinda Chang, MD, Lauren Ditta, MD, Kimberly Gokoffski, MD, PhD, and Andrew Melson, MD

NANOS 2021 Speakers and Moderators

Naghm Al-Zubidi, MD
University of Texas MD
Anderson Cancer Center
Houston, TX

Anthony Arnold, MD
UCLA Stein Eye Institute
Los Angeles, CA

Robert Avery, DO
Children's Hospital of
Philadelphia
Philadelphia, PA

Laura Balcer, MD, MSCE
New York University Grossman
School of Medicine
New York, NY

Jason Barton, MD, PhD
FRCPC
University of British Columbia
Vancouver, Canada

Jeffrey Bennett, MD, PhD
University of Colorado School
of Medicine
Aurora, CO

Shannon Beres, MD
Stanford University
Palo Alto, CA

Mark Borchert, MD
Children's Hospital Los Angeles
/ USC Keck School of Medicine
Los Angeles, CA

Beau Bruce, MD, PhD
Emory University
Atlanta, GA

Sophia Chung, MD
University of Iowa Hospitals and
Clinics
Iowa City, IA

Lindsey De Lott, MD, MS
University of Michigan
Ann Arbor, MI

Marc Dinkin, MD
Weill Cornell Medical College,
Departments of Ophthalmology
and Neurology
New York, NY

Mays El-Dairi, MD
Duke Eye Center
Durham, NC

Julie Falardeau, MD
Casey Eye Institute, Oregon
Health and Science University
Portland, OR

Nancy Fischbein, MD
Stanford University
Stanford, CA

Courtney Francis, MD
University of Washington
Seattle, WA

Clare Fraser, FRANZCO
Save Sight Institute, The
University of Sydney
Sydney, Australia

Aubrey Gilbert, MD, PhD
Kaiser Permanente Northern
California
Vallejo, CA

Dan Gold, DO
The Johns Hopkins University
School of Medicine
Baltimore, MD

Lynn Gordon, MD, PhD
Stein Eye Institute, David Geffen
School of Medicine at UCLA
Los Angeles, CA

Jennifer Graves, MD, PhD, MAS
University of California,
San Diego
San Diego, CA

Gena Heidary, MD, PhD
Boston Children's Hospital
Boston, MA

Ruth Huna-Baron, MD
Sheba Medical Center, Sackler
School of Medicine Tel Aviv
University
Tel Aviv, Israel

Hong Jiang, MD, PhD
University of Miami/Bascom
Palmer Eye Institute and
Department of Neurology
Miami, FL

**Guy Jirawuthiworavong,
MD, MA**
Southern California Permanente
Medical Group, Orange County
Medical Service Area
La Palma, CA

Randy Kardon, MD, PhD
Department of Ophthalmology,
University of Iowa Hospital and
Clinics and Iowa City VA Health
Care System
Iowa City, IA

James Kelly, MD
Marcus Institute for Brain
Health, University of Colorado
Aurora, CO

Melissa W. Ko, MD, FAAN, CPE
Indiana University
School of Medicine
Indianapolis, IN

Kevin Lai, MD
Indiana University School of
Medicine, Circle City Neuro-
Ophthalmology, Midwest Eye
Institute, Richard L. Roudebush
VA Medical Center
Indianapolis, IN

**Alexander Leff, MBBS,
PhD, FRCP**
University College London
Queen Square Institute of
Neurology
London, England

Y. Joyce Liao, MD, PhD
Stanford University
Stanford, CA

Grant Liu, MD
University of Pennsylvania/
Children's Hospital of
Philadelphia
Philadelphia, PA

Vinit B. Mahajan, MD, PhD
Stanford University
Palo Alto, CA

Dan Milea, MD, PhD
Singapore National Eye Centre/
Singapore Eye Research Institute
Singapore

Susan Mollan, FRCOphth
University Hospitals
Birmingham NHS Foundation
Trust
Birmingham, England

Heather E. Moss, MD, PhD
Byers Eye Institute at Stanford
Palo Alto, CA

Victoria S. Pelak, MD
University of Colorado School
of Medicine
Aurora, CO

Jason Peragallo, MD
Emory University
Atlanta, GA

Paul H. Phillips, MD
University of Arkansas for
Medical Sciences
Little Rock, AR

Stacy L. Pineles, MD
University of California,
Los Angeles
Los Angeles, CA

Sashank Prasad, MD
Brigham and Women's Hospital,
Harvard Medical School
Boston, MA

Janet Rucker, MD
New York University Grossman
School of Medicine
New York, NY

Kenneth Shindler, MD, PhD
University of Pennsylvania
Philadelphia, PA

Craig Smith, MD
University of Washington
Department of Medicine
Seattle, WA

Raymond Sobel, MD
VA Health Care System /
Stanford University School of
Medicine
Palo Alto, CA

Steven F. Stasheff, MD, PhD
Children's National Hospital &
National Eye Institute, NIH
Washington D.C.

Prem S. Subramanian, MD, PhD
University of Colorado School
of Medicine
Aurora, CO

Linus Sun, MD, PhD
Columbia University Vagelos
College of Physicians and
Surgeons
New York, NY

Michael Wan, MD, FRCSC
University of Toronto, Sick Kids
Hospital
Toronto, Canada

Kimberly Wings, MD
VA Portland Health Care
System, Casey Eye Institute/
Oregon Health & Science
University
Portland, OR

Social Functions

Welcome Reception

Saturday, February 20th – 6:00 – 7:00 pm MST

Join us in Gather Town for an interactive reception. Go to the Auditorium and click “Join” next to the Welcome Reception. Gather Town is a video-calling space that lets multiple people hold separate conversations in parallel, walking in and out of those conversations just as easily as you would at an in-person reception. We look forward to seeing you there!

Virtual Wine Tasting

Sunday, February 21st – 6:00 – 7:00 pm MST

Join us as NANOS members lead us through tastings of some of their favorite wines and regions. We’ll enjoy a selection of sparkling, white and red wines and learn about the different varietals and regions. *Hosted by Drs. Deborah Friedman and Lynn Gordon.*

Tasting Menu

Dr. Prem S. Subramanian

J Vineyards Cuvée 20 (NV)

G H Mumm Champagne Grand Cordon (NV)

Montaudon Champagne Brut Classe M (NV)

Dr. Anthony Arnold

Tablas Creek 2017 Esprit de Tablas Blanc

Denner 2017 The Ditch Digger

Justin 2017 Isoscele

Dr. Steven E. Feldon

Daou 2017 Mayote

2017 Route Stock 116, Sonoma Coast

2018 Belle Glos, Dairyman, Russian River

Paul Hobbs, Hyde Vineyard, Carneros, Napa

Dr. Matthew Kay

Cade 2018 Sauvignon Blanc

Cade 2017 Cabernet

Cade 2017 Howell Mountain Estate Cabernet

NANOS Talent Show

Monday, February 22nd – 2:30 – 3:30 pm MST

Neuro-ophthalmologists have a lot of superpowers that will be revealed during the NANOS Talent Show taking place live. Creativity, smiles, and enjoyment are guaranteed. *NANOS's Got Talent* is hosted by Drs. Melissa W. Ko & Peter Quiros. Join in the fun!

Richard Sogg	Piano Performance
Joe Chacko	Skateboarding
Greg Kosmorsky	A Fashionable Foxtrot
Aimee Szewka	"Take Care of This House" Vocal Performance
Danielle Isen	"My NANOS" (Vocal Performance; a spin off of "My Man")
Irina Krikova	Intercontinental Musical Project
Zachary Koretz	Magic with Amazing Zachary
Melissa Ko	"What a Wonderful Walsh" (Vocal performance; lyrics adapted by M. Ko)
Wesley Chan	"Jenny of Oldstones" Vocal Performance
Fayçal Mokhtari	Piano Original Song
Prem Subramanian	The Long Horn Call from Wagner's Opera Siegfried
Sonalee Kulkarni	"Love Story" Vocal Performance
Rudrani Banik	Bharatanatyam (Classical Indian Dance)
Elizabeth Fortin	Musical Review of 2020 (on the violin with short narration)
Mays El-Dairi	"NANOS Smiles" Photography

Awards Ceremony

Tuesday, February 23rd – 6:00 – 7:00 pm MST

Celebrate with us as we recognize the 2021 award winners! Tune in as we announce the winners of the NANOS talent show, recipients of the Pilot Grant and Leadership grant, 2021 Merit Award winner, Best Abstract awards, Best Frank B. Walsh Paper Presentation by a Fellow, Young Investigator Award, and much more! Dr. Larry Frohman has prepared an excellent menu for you to make at home.

Menu

First Course	Mini Char Shu Pork Sandwich on Garlic Bread
Sauce	Marsala Morel Sauce
Main Course	Choice of: Veal with Prosciutto and Gruyere in Marsala Morel Sauce Filet Mignon in Marsala Morel Sauce Sous Vide Chateaubriand in Marsala Morel Sauce Parsnips with Gruyere
Side Dish	Balsamic Glazed Cipollini Onions (Cipollini Agrodolce)
Dessert	Bourbon Chocolate Pecan Pie

Donations

NANOS would like to thank the following individuals for their generous donations: 01/1/2020-1/31/2021

Glaser Society \$5,000 - \$9,999

- Preston Calvert, MD (In honor of Neil Miller, MD)
- Benjamin Frishberg, MD (In memoriam of Harvey Braufman, MD)

Wirtschafter Club \$1,000 - \$2,499

- Sophia Chung, MD (In honor of John Selhorst, MD)
- Kathleen Digre, MD (In honor of James J. Corbett, MD and Stan Thompson, MD)
- Edmond FitzGibbon, MD
- Deborah Friedman, MD, MPH (In honor of Robert Spector, MD who started my journey in Neuro-Ophth)
- Lynn Gordon, MD, PhD
- Steven Hamilton, MD (In memoriam of Simmons Lessell, MD)
- John Keltner, MD
- Melissa Ko, MD (In honor of Nicholas Volpe, MD)
- Leah Levi, MD (In honor of trailblazing women: Kathleen Digre, MD and Deb Friedman, MD, MPH)
- Patty McNussen, MD (In honor of Randy Kardon, MD, PhD)
- Mark Moster, MD
- Nancy Newman, MD and Valerie Biousse, MD (In memoriam of Simmons Lessell, MD)
- Stephen Pollock, MD (In honor of Neil Miller, MD)
- Peter Quiros, MD
- Prem Subramanian, MD, PhD
- Sharon Tow, MD (In honor of Neil Miller, MD)

Averbuch-Heller Guild \$500 - \$999

- Phil Aitken, MD (In honor of Michael Sanders; In memoriam of Simmons Lessell, MD)
- Erica Archer, MD
- Larry Frohman, MD (In honor of my fellowship preceptor, Mark Kupersmith, MD)
- Gerard Hershowe, DO (In honor of Thomas Carlow, MD)
- Sachin Kedar, MD (In honor of James J. Corbett, MD)
- Roy Meckler, MD (In honor of James J. Corbett, MD)
- Sashank Prasad, MD
- Valerie Purvin, MD
- Sonali Singh, MD (In honor of Jade Schiffman, MD and Rosa Tang, MD)
- Barry Skarf, MD (In memoriam of William F. Hoyt, MD)

Hedges Club \$250 - \$499

- David Bellows, MD (In honor of Walter Jay, MD)
- Joe Chacko, MD (In honor of Norman Schatz, MD)
- Helen Danesh-Meyer, MD (In honor of Kathleen Digre, MD)
- Jane Edmond, MD (In honor of my teachers and inspirations: Stanley Thompson, MD, Randy Kardon, MD, Rod Foroozan, MD, and Sophia Chung, MD)
- Ryan Gise, MD (In memoriam of Simmons Lessell, MD)
- Christopher Glisson, DO
- Ramesh Gopalaswamy, MD
- Thomas Hedges, MD
- Robert Lesser, MD
- Seema Sundaram, MD
- Roger Turbin, MD

Zaret Society \$100 - \$249

- Anonymous donor (In honor of Andrew G. Lee, MD)
- Nathaniel Carter, MD
- John Chen, MD, PhD
- Ping-I Chou, MD
- Edward Cohn, MD
- Nicole Dubbs
- Valerie Elmaleh, MD
- Elizabeth Fortin, MD
- Bahareh Hassanzadeh, MD
- Arthur Jordan, DO, MBA
- Bonnie Keung, MD
- Nancy Lombardo, MLS
- Collin McClelland, MD (In honor of great senior partners and mentors: Michael Lee, MD, Greg Van Stavern, MD & Banks Shepherd)
- Leonard Messner, MD
- Heather Moss, MD, PhD
- Harold Shaw Jr, MD
- Richard Sogg, MD (In memoriam of Cheryl Zaret, MD)
- Kimberly Wings, MD (In honor of John Keltner, MD for inspiring the importance of supporting NANOS)
- Charles Winkelman, MD
- Xiaojun Zhang, MD (In honor of Byron Lam, MD)

Contributors \$1- \$99

- Aileen Antonio, MD
- Andrew Berman, MD
- Gabrielle R. Bonhomme, MD
- Amal Buhliga, MD
- John Charley, MD
- Steven Grosser, MD
- Klara Landau, MD
- Sarkis Marcel Nazarian, MD
- Deborah Parish, MD, MSc
- Barb Rynew
- Norman Schatz, MD
- Mehdi Tavakoli, MD
- Barbara Yates, MD



2021 Supporters

Platinum Level

Horizon Therapeutics



Silver Level

Gensight Biologics



Bronze Level

Diagnosys LLC



2021 Exhibitors

Alexion Pharmaceuticals

Diagnosys LLC

GenSight Biologics

Horizon Therapeutics

LHON Project

Optomed USA, Inc.

Sanofi Genzyme

Viela Bio

Wolters Kluwer

NANOS Awards Ceremony Menu

The menu and recipes are provided for the information and entertainment of attendees. Attendees assume all risks associated with participation. NANOS makes no representations or warranties of any kind, express or implied. NANOS is not responsible for any illness, allergic reaction, infection, or other ill effects due to food, ingredients, utensils, equipment, preparation, or other cause. Reference or linking to recipes, products, services, websites, or third parties are not an endorsement by NANOS. Under no circumstances will NANOS be liable for any loss or damage, direct or indirect, to any attendee, participant, or other person.

Prepared by Dr. Larry Frohman

A couple of items need a little bit of advanced planning, and we've included links for purchasing below. All but the main course can be prepared ahead of time.

[Morel mushrooms for sauce](#)

[Balsamic fig glaze \(optional\)](#)

FIRST COURSE

Mini Char Shu Pork Sandwich on Garlic Bread

I have made this recipe many times- the key is to marinate the meat 24-48 hours in advance. The pork original recipe can be found [here](#) and is detailed below. If you do not like pork, you can substitute chicken. The cooking times and notes for chicken are [here](#).

If you cannot get the pork cuts the recipe calls for, you can substitute pork tenderloin (note: the cooking time for tenderloin is a little different).

Note for the sous viders- this dish actually comes out better by good old-fashioned roasting. The beauty of this recipe is the leftovers can be frozen and then used for many dishes - one of our favorites is on garlic bread as a sandwich.

For an appetizer, you can either use garlic bread or Texas Toast. A little lettuce or arugula on the sliced pork is all you need. For a low-carb option, slice it thin, and wrap it in lettuce leaves.

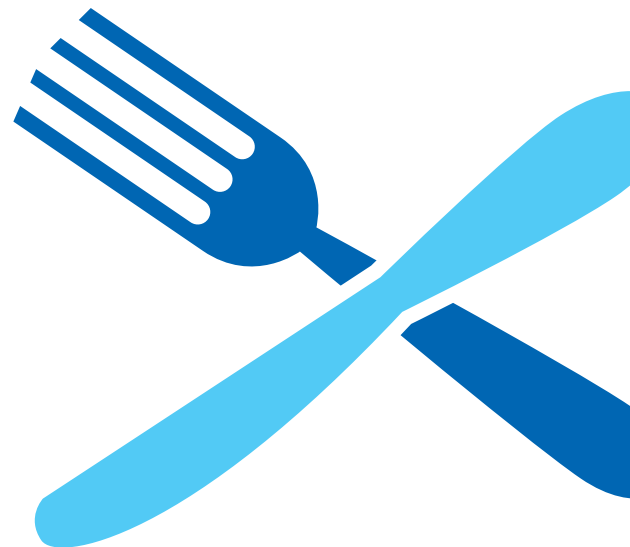
INGREDIENTS

Marinade

- 1½ tbsp brown sugar (white also ok)
- ¼ cup honey
- ¼ cup hoisin sauce
- 2 tbsp light soy sauce, or all-purpose soy (Note 1)
- 1 tbsp soy sauce, just all purpose (or more light soy) (Note 1)
- 1 tsp Chinese five spice powder (Note 2)
- 1 tbsp oil (vegetable or canola) (Note 3)
- 2 tsp red food coloring, optional (Note 4)

Cooking

- 1.2 – 1.5kg / 2.4 – 3lb pork scotch fillet (aka collar neck, pork neck)
- OR pork shoulder (Note 5)
- 2 tbsp extra honey



DIRECTIONS

Marinade pork

1. Cut pork in half to make two long strips. (Note 5)
2. Mix Marinade ingredients in a bowl.
3. Place the pork and Marinade in a stain proof container or sealable bag. Marinate 24 to 48 hours in the fridge (3 hours is the bare minimum).

To Roast

1. Preheat oven to 160C/320F.
2. Line a tray with foil and place a rack on top (recommended, but not critical).
3. Remove pork from the marinade; set aside Marinade. Place pork on rack.
4. Roast for 30 minutes.
5. Meanwhile, pour reserved marinade in a saucepan. Mix extra honey into marinade. Bring to simmer over medium high and cook for 2 minutes until syrupy. Remove from heat.
6. Remove pork from oven. Dab marinade all over, then turn. Baste then roast for another 30 minutes.
7. Remove pork from oven. Brush with marinade again, then turn, brush with marinade and roast for another 20 minutes. If charring too quickly, cover with foil.
8. Baste again on surface then bake for another 10 minutes until caramelized and sticky. Meat should be tender, but not falling apart (similar to pulled pork). Allow to rest for 10 minutes before slicing.

RECIPE NOTES

1. *Soy Sauce* – The light soy sauce adds a touch more salt to the marinade, the balance I like. But it's fine to use all light soy sauce, or all ordinary soy sauce. Do not use dark soy sauce (flavor is too intense).
2. *Chinese five spice powder (a mix of spices)* – find it in the herb and spice section of supermarkets. It isn't any more expensive than other common spices. You can substitute the Chinese five spice powder with 1 tbsp extra hoisin sauce BUT you should reduce the sugar to 1 tsp, otherwise it will be too sweet.
3. *Oil* – Or other neutral flavored oil.
4. *Red food coloring* – to make the pork red. This is optional. Authentic Char Siu uses red bean curd for coloring and a touch of flavor. Use about 2 tbsp of the liquid and no red food coloring.
5. *Pork* – I used to make this with pork tenderloin (Note 7) but I've moved to scotch fillet roast (pictured in post) and pork shoulder because they are ideal for longer cooking to get amazing caramelization and the pork is incredibly juicy inside. Scotch fillet is also known as Pork Neck, Pork Collar or Pork Neck Collar. Pork shoulder is also ideal and very juicy. If using pork shoulder- use a boneless and skinless shoulder and trim off most of the thick layer of fat on the surface. Then cut into long thin pieces, like pictured in post with the scotch fillet. The meat will buckle and twist more when cooked because the meat is more sinewy. Flavor is excellent!
6. *Cutting pork* – it doesn't really matter which way you cut it, horizontal or straight down the middle. If you have a thick piece of pork, cut in half horizontally to make two long, flat, thin pieces. If it's not that thick, simply cut it straight down the middle.
7. *Pork Tenderloin* – cooking directions: Roast at 180C/350F for 25 minutes or until the internal temperature is 145 – 160F/ 65 – 70C. Around halfway through roasting, baste generously with the reserved Marinade. Sort of dab it on so you get as much Marinade on the pork as possible – this is key for getting the thick, glossy glaze. Then flick to broiler/grill on high and broil for a few minutes until surface is charred and glossy, basting once or twice.

SAUCE

Marsala Morel Sauce

You can make this a day in advance. You need about 2 ounces per serving. We are going to make extra as you will like this so much, you will want to freeze it!

INGREDIENTS

8 tbsp butter
6 tbsp all-purpose flour
1/4 tsp salt
1/2 tsp pepper
2 one cup beef bouillon cubes
1 1/4 cups cream
1 1/4 cups marsala wine (can also use port)
1/2 cup of liquid from soaking morels
4 large shallots
About 6 large or 8 medium morels (about 3/4 ounce, no need to formally weigh)

DIRECTIONS

1. Before you begin cooking sauce: take morels, place in 6 ounces warm water, and let soak for 30 minutes. Reserve liquid from soaking morels.
2. Mince morels coarsely.
3. In a 2 qt saucepan, melt butter over low heat. Add shallots and let them brown a bit while stirring- about 3-5 minutes.
4. Add the pepper.
5. Add flour one tbsp at a time, stirring constantly, to make roux. Add a tbsp about every 30 seconds. Keep stirring!
6. Add the three liquids- wine, morel extract, and cream.
7. Add the 2 bouillon cubes.
8. Add the minced morels.
9. Stir and simmer over low heat until you reach desired thickness- stir periodically.
10. Taste- feel free to add salt, pepper, more butter, more cream- whatever you like to adjust (more wine!).
11. Set aside.

If you are someone who really likes their sauce to be darker brown, add a tsp or two of either [kitchen bouquet](#) or [gravy master](#).

MAIN COURSE

Veal with Prosciutto and Gruyere in Marsala Morel Sauce

Like the sauce, this is my own recipe, a variation on veal saltimbocca. It is based upon the principle that you can never have enough cheese. This is the most difficult of the four main courses to prepare.

INGREDIENTS

8 ounces grated Gruyere cheese
8 thin slices prosciutto
4 veal cutlets (4 ounces each) need be thin-pound a little if necessary (you can substitute chicken if you pound it thin- make sure you cook it adequately)
1/4 cup all-purpose flour
1/4 tsp salt
1/4 tsp pepper
1 tbsps butter
1 tbsps olive oil

DIRECTIONS

1. Pre-heat broiler.
2. In a large resealable plastic bag, combine flour, salt and pepper. Add veal, a couple of pieces at a time, and shake to coat. In a large skillet, brown veal in butter and oil on all sides, 1-2 minutes per side.
3. Take a baking sheet which is covered in parchment paper, nonstick foil, or sprayed to be non-stick and place veal on sheet.
4. Place two slices of prosciutto (rosemary ham also works) on each piece of veal.
Place the grated cheese on the prosciutto and be generous! Broiled gruyere alone is a side dish unto itself!
5. Melt cheese in broiler and watch carefully- it will not take long.
6. Pour the sauce over your veal.

MAIN COURSE

Filet Mignon In Marsala Morel Sauce

INGREDIENTS (FOR ONE SERVING)

6 oz filet mignon
coarse salt, to taste
freshly ground black pepper, to taste
1 tbsp grapeseed oil, or other high-heat, neutral oil of choice (canola works fine)
2 tbsps unsalted butter
2 sprigs fresh rosemary (optional)
1 clove garlic (optional)

DIRECTIONS

1. On a cutting board, pat the filet mignon dry with paper towels and let sit at room temperature for 20-30 minutes.
2. Preheat the oven to 450 °F (230 °C).
3. Generously season all sides of the filet mignon with salt and pepper.
4. Heat a medium, oven-safe stainless steel or cast-iron skillet over high heat for 5 minutes. Add the grapeseed oil.
5. Once the oil begins to smoke, add the filet mignon to the pan. Cook without moving for 2-3 minutes, until a crust has formed.
6. Use tongs to flip the steak over, then add the butter, rosemary, and garlic to the pan.
7. Tilt the pan and spoon the butter continuously over the steak for 2-3 minutes.
8. Transfer the pan to the oven for 7 minutes for a medium rare steak.
9. Transfer the steak to a cutting board and let rest for at least 10 minutes before slicing.
10. Pour warm sauce over and enjoy!

MAIN COURSE

Sous Vide Chateaubriand In Marsala Morel Sauce

This one is for the techies who want to pull out their Anovas, their tank, their sous vide weights...there's plenty of extra to freeze here!

INGREDIENTS (FOR 6)

1 beef tenderloin, 3-4 pounds. Tied/trussed (optional)
kosher salt
fresh cracked pepper
rosemary
thyme
3 cloves garlic, smashed
olive oil
butter

DIRECTIONS

1. Set Anova Sous Vide Precision Cooker to 134°F / 56.7°C
2. Season tenderloin with salt and pepper.
3. Place tenderloin in resealable ziploc bag or vacuum bag. Add rosemary, thyme, crushed garlic cloves, and olive oil. Sous vide for 2-3 hours.

FINISHING STEPS

1. Heat heavy-bottomed pan over high heat.
2. Remove tenderloin from bag, dry thoroughly, reserve herbs and garlic.
3. Add olive oil to pan and sear beef on both sides for 1-2 minutes until the desired sear is reached. For the last 30 seconds, add butter, herbs, and garlic and baste beef with the herb-infused butter.
4. Slice beef into 1/2" medallions and enjoy perfectly cooked beef tenderloin!

MAIN COURSE

Parsnips With Gruyere (Vegetarian)

Two things I have learned:

1. You can never have too much gruyere.
2. If you are going to use a mandolin, you should have and wear a pair of [butcher cutting gloves](#).

INGREDIENTS

2 ¼ – 2 ½ lbs parsnips
1 medium onion- yellow or white
3 cups heavy whipping cream (do not substitute half and half or milk)
butter for greasing pan
¼ tsp fresh nutmeg (or ground), more for the top
¼ tsp white pepper
1¼ tsp kosher salt
1 tbsp Fresh Thyme
1 tbsp flour or rice flour
3 large, minced cloves garlic
6 – 8 ounces, grated gruyere cheese (you can use twice this amount)

DIRECTIONS

1. Preheat oven to 400 F.
2. Peel the parsnips and using a mandolin, slice parsnips to 1/8 thin slices. The thinner the slices the faster this will bake. If you don't have a mandolin, slice them as thinly as humanly possible! Thinly slice the onion and grate the cheese.
3. Generously grease a 9 x 13 inch baking dish with butter.
4. Layer the parsnips and onion with ⅔ of the cheese and ⅔ of the thyme -saving the rest for the top- and reserving the more perfect pieces of parsnips for the final top layer. Press down and make sure layers are even. It is okay if the inside layers are messy. Place the last layer of parsnip slices in nice looking overlapping rows.
5. In a small pot, heat 3 cups heavy whipping cream. Whisk in salt, nutmeg, the remaining thyme, white pepper, flour and the garlic and when it just comes to a simmer, pour over the layered parsnips, slanting the baking dish to get the cream in all the nooks and crannies. Sprinkle the remaining cheese over the top, a few more leaves of thyme and a little sprinkling of nutmeg. Cover securely with a lid or foil and bake for 50-60 minutes on the middle rack until parsnips are fork tender. Check, remove foil, pierce with fork, parsnips should be al dente. (If not- your parsnips were perhaps cut thicker than 1/8 of an inch, and you will need to cook longer with the foil on.) Also, don't worry if it seems watery at this point.
6. Once fork tender, remove foil and bake another 15 minutes uncovered, or until golden and bubbly. It is important to let it sit at room temp for 15-20 minutes before serving, so it sets up and thickens.
7. You can also make this all ahead, and simply reheat before serving.

SIDE DISH

Balsamic Glazed Cipollini Onions (Cipollini Agrodolce)

The full recipe can be found [here](#) and is detailed below.

OPTIONAL - in the last minute of cooking, add ¼ cup of [fig balsamic glaze](#).

You can substitute pearl onions if you cannot get the sweeter cipollinis.

INGREDIENTS

1 1/2 pounds (675 g) cipollini onions
2 tbsp butter
1 tbsp olive oil
1 tbsp granulated sugar
1/2 tsp kosher salt
1/3 cup (75 ml) water
1/4 cup (60 ml) balsamic vinegar
1 tsp chopped fresh thyme or rosemary leaves

DIRECTIONS

1. Bring a saucepan of water to a boil. Drop in the onions and boil 2 minutes. Drain and cool slightly.
2. Use a small, sharp knife to slice off the top of the onions, then slip off the skins. Trim any hairy roots, but leave the stem end intact so that the onions don't separate. If the onions are larger than 1½-inches diameter, slice into halves or quarters.
3. Heat the butter and oil in a medium (8-10-inch) nonstick skillet over medium-high heat. When the butter stops foaming and begins to smell nutty, add the onions to the pan. Cook 5 minutes, or until the onions are browned, stirring occasionally.
4. Sprinkle the onions with the sugar and salt. Pour the water and vinegar over them (the pan will sputter). Turn the heat down to medium and cover the pan. Cook 5 minutes.
5. Uncover the pan and continue cooking until the liquid in the pan looks syrupy and has large bubbles, another 2-3 minutes. Sprinkle with the thyme and serve.

DESSERT

Bourbon Chocolate Pecan Pie

INGREDIENTS

Crust (can also use a pre-made crust)

1¼ cups all-purpose flour
2 tsp sugar
¼ tsp salt
1 stick cold unsalted butter (4 ounces cut into pieces)
¼ cup ice water

Filling

2 cups pecans (about 7 ounces)
3 large eggs
¾ cup dark brown sugar
⅔ cup light corn syrup
1 tsp pure vanilla extract
2 tbsp unsalted butter (melted)
3 tbsp bourbon
½ tsp salt
¾ cup semisweet or bittersweet chocolate chips



DIRECTIONS

1. In a food processor, pulse the flour with the sugar and salt. Add the butter and pulse until the mixture resembles coarse meal. Transfer to a bowl and stir in the ice water. Knead the dough 2 or 3 times on a lightly floured surface and pat into a disk. Wrap in plastic and refrigerate for at least 30 minutes.
2. On a lightly floured surface, roll out the dough to a 12-inch round. Fit the dough into a 9-inch glass pie plate. Trim the overhang to 1/2 inch, fold the edge under itself and crimp decoratively. Refrigerate until firm.
3. Preheat the oven to 375°. On a rimmed baking sheet, toast the pecans for about 8 minutes, or until fragrant; coarsely chop. In a large bowl, whisk the eggs with the brown sugar, corn syrup, vanilla, melted butter, bourbon and salt until blended. Stir in the pecans and chocolate chips until evenly distributed.
4. Pour the filling into the pie shell. Bake on the bottom shelf of the oven for about 55 minutes, or until the center of the pie is set. Tent the crust with foil halfway through the baking time if the edge is browning too quickly. Transfer the pie to a rack and let cool for at least 1 hour before serving.

Become a NANOS member today!

www.nanosweb.org



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



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



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



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.

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*

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

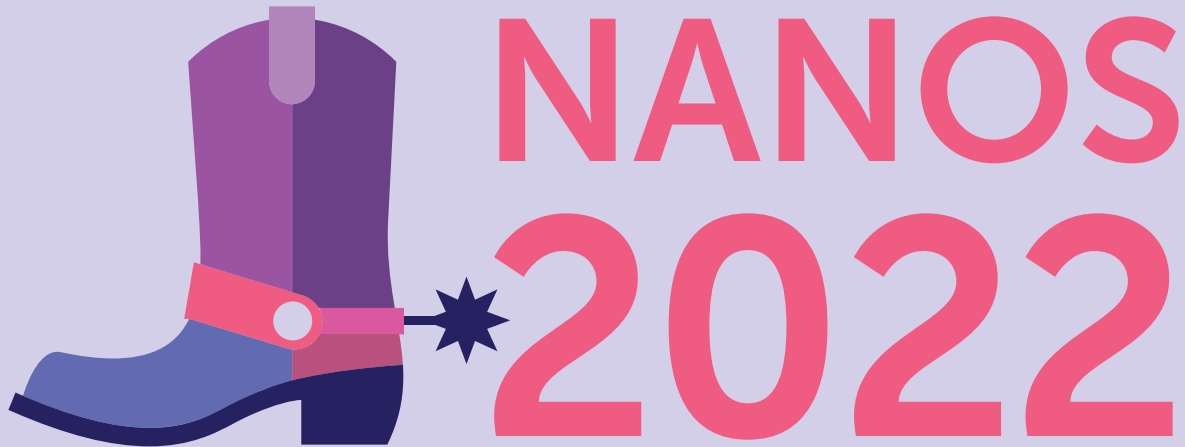


NORTH AMERICAN NEURO-OPHTHALMOLOGY SOCIETY

SAVE THE DATE

48TH

ANNUAL MEETING



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

