Visual System Evaluation in MS and other demyelinating diseases

MONDAY, 2 JUNE 2025

08.45 **Welcome & Introduction**
Ann Yeh (Toronto, CA), Gabriel Bsteh (Vienna, AT)

09.00 - 09.45 **Lecture 1: Visual pathway in MS and other demyelinating diseases: success and pitfalls over the last decades**
Peter Calabresi (Baltimore, US)

09.45 - 11.05 **Session 1: Approach to the visual system: functional and structural assessments**
Chairs: Friedemann Paul (Berlin, DE), Ahmed Toosy (London, UK)

09.45 Visual function assessment in clinical practice
Jennifer Graves (San Diego, US)

10.00 OCT and OCT-A: general principles, applications and limitations
Benjamin Knier (Munich, DE)

10.15 VEP: general principles, applications and limitations
Letizia Leocani (Milan, IT)

10.30 ON – MRI: general principles, applications and limitations
Olivier Outteryck (Lille, FR)

10.45 Panel Discussion / Q&A
Chairs / All Speakers

11.05 - 11.30 **Coffee Break**

11.30 - 13.00	**Session 2: Optic nerve in the diagnostic process** Chairs: Hadas Stiebel-Kalish (Tel Aviv, IL), Jaume Sastre-Garriga (Barcelona, ES)
11.30	Diagnosing optic neuritis: 2022 diagnostic criteria *Ahmed Toosy (London, UK)*
11.50	New McDonald criteria for MS: implications for ON evaluation *Angela Vidal-Jordana (Barcelona, ES)*
12.10	New NMOSD criteria: implications for ON evaluation *Frederike Oertel (Berlin, DE)*
12.30	Panel Discussion / Q&A *Chairs / All Speakers*
13.00 - 14.00	**Network Lunch (Speed dates / Meet the expert sessions / round tables with faculty and participants)** Chairs / participating faculty: TBC from the chairs and speakers Three main topics to be defined
14.00 - 15.30	**Session 3: Use the visual pathway to make the diagnosis** Chairs: Angela Vidal-Jordana (Barcelona, ES), Gabriel Bsteh (Vienna, AT)
14.00	Clinical and paraclinical manifestation of optic nerve damage in MS, MOGAD, and NMOSD *Fiona Costello (Calgary, CA)*
14.20	Special populations: children *Ann Yeh (Toronto, CA)*
14.40	Differential diagnosis beyond demyelinating disease *Cassandra Ocampo (Gaborone, BW)*
15.00	Panel Discussion / Q&A *Chairs / All Speakers*

15.30 - 16.30	**Session 4: Use the visual pathway to make the diagnosis: clinical cases** Chairs: Robert Bermel (Cleveland, US), Frauke Zipp (Mainz, DE)
15.30	Clinical case 1 (MS / MOGAD / NMOSD) *Eleni Vasileiou (Baltimore, US)*
15.50	Clinical case 2 (pediatric) *Lekha Pandit (Mangalore, IN)*
16.10	Clinical case 3 (broad differential diagnosis) *Maria Cellerino (Genoa, IT)*

Panel Discussion / Q&A within the clinical cases (interactive clinical cases, if possible with voting from the audience)

16.30 - 17.00	**Coffee Break**
17.00 - 17.45	**Lecture 2: Visual metrics to monitor disease evolution in MS** *Ari Green (San Francisco, US)*
17.45	**End of Day 1**
19.30	**Dinner at the hotel**

TUESDAY, 3 JUNE 2025

09.00 - 09.30	**Lecture 3: Multimodal metrics of visual pathway measurements and other biomarkers** *Sven Schippling (Basel, CH)*
09.30 - 11.00	**Session 5: Advanced visual pathway assessment metrics** Chairs: Matilde Inglese (Genoa, IT), Robert Hoepner (Bern, CH)
09.30	Quantitative MR imaging metrics of the visual pathway *Sara Collorone (London, UK)*

09.50	Advanced functional metrics *Netta Levin (Jerusalem, IL)*
10.10	Pathology of the anterior visual pathway and new diagnostic and evaluative technologies *Gabriele DeLuca (Oxford, UK)*
10.30	Panel Discussion / Q&A *Chairs / All Speakers*
11.00 - 11.20	**Coffee Break**
11.20 - 12.30	**Session 6: Artificial intelligence for the visual system in neuroinflammation** Chairs: Rachel Kenney (New York, US), Jaume Sastre-Garriga (Barcelona, ES),
11.20	Nuts and bolts of artificial intelligence *Carmen Tur (Barcelona, ES)*
11.40	Clinical application: use of AI in structural visual metrics (OCT) *Shiv Saidha (Baltimore, US)*
12.00	Clinical applications 2: Machine learning for diagnosis in MS and other neuroinflammatory conditions, multimodal approaches *Rachel Kenney (New York, US)*
12.30	Panel Discussion / Q&A *Chairs / All Speakers*
12.50 - 13.45	**Network Lunch (Speed dates / Meet the expert sessions / round tables with faculty and participants)** Chairs / participating faculty: TBC from the chairs and speakers Three main topics to be defined

13.45 - 18.30	**Workshops 1-3 (three groups, participants will rotate workshops)**
13.45 - 15.15	**Workshop 1: Statistics, special considerations when evaluating the visual system**

- General considerations
- Cross-sectional studies
- Longitudinal models
- International collaborations

*Facilitators: Kate Fitzgerald (Baltimore, US),
Elena Martínez-Lapiscina (Barcelona, ES),
Frederike Oertel (Berlin, DE)*

Workshop 2: Hands on OCT / OCT-A

- General considerations for OCT-A
- Caveats
- Interpretation

*Facilitators: Benjamin Knier (Munich, DE),
Elias Sotirchos (Baltimore, US),
Sara Collorone (London, UK)*

Workshop 3: Hands on VEP

- General considerations for VEP acquisition
- Caveats
- Interpretation

*Facilitators: Letizia Leocani (Milan, IT), Ann Yeh (Toronto, CA)
Angela Vidal-Jordana (Barcelona, ES)*

15.15 - 16.45	**Workshops 1-3 (three groups, participants will rotate workshops)**
16.45 - 17.00	**Coffee Break**
17.00 - 18.30	**Workshops 1-3 (three groups, participants will rotate workshops)**
18.30	**End of Day 2**
19.30	**Summer School Dinner**

WEDNESDAY, 4 JUNE 2025

08.45 - 10.30 **Working Groups A-C**
Participants will work in 3 groups and will prepare projects for clinical practice and / or research that include different visual pathway measures techniques, timing, and measures.
Participants will receive feedback from senior investigators

- Working Group A: Clinical trial design using the visual pathway as the primary outcome
  Facilitators: Friedemann Paul (Berlin, DE),
  Hadas Stiebel-Kalish (Tel Aviv, IL)

- Working Group B: Monitoring disease evolution using the visual pathway
  Facilitators: Robert Bermel (Cleveland, US*),*
  Fiona Costello (Calgary, CA)

- Working Group C: Exploring the pathogenesis of the disease using visual pathway metrics
  Facilitators: Peter Calabresi (Baltimore, US),
  Jeff Bennett (Aurora, US)

10.30 - 11.00 **Coffee Break**

11.00 - 12.30 **Plenary Session**
Chairs: Matilde Inglese (Genoa, IT), Ann Yeh (Toronto, CA)
All facilitators

11.00 Participants' presentations by the coordinator of the working groups (20 minutes presentation each group)

12.00 Group discussion led by facilitators

12.30 - 12.45 **Closing remarks**
Matilde Inglese (Genoa, IT), Ann Yeh (Toronto, CA)

As of 12.45 **Lunch and individual departure**