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- **Giuseppe Barbagallo**  
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- **Lorenzo Bello**  
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- **Yuri Bozzi**  
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- **Barbara Cassone**  
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- **Hugues Duffau**  
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- **Marco Fontanella**  
Department of Neurosurgery, University of Brescia
- **Stephanie Forkel**  
Radboud University, The Netherlands
- **Maurizio Fornari**  
Department of Neurosurgery, Humanitas University, Milan
- **Michael D. Fox**  
Department of Neurology, Harvard Medical School, Boston, MA, US
- **Diego Garbossa**  
Department of Neurosurgery, University of Turin
- **Guillaume Herbet**  
Department of Neurosurgery, University of Montpellier, France
- **Tamara Ius**  
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- **Jorge Jovicich**  
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- **Sandro Krieg**  
Department of Neurosurgery, University of Munich
- **Giuseppe Lombardi**  
Department of Oncology, Istituto Oncologico Veneto
- **Emmanuel Mandonnet**  
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- **Carlo Miniussi**  
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- **Francois Rehaut**  
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- **Roberta Rudà**  
Department of Neurology, University of Torino
- **Michael Sabel**  
Department of Neurosurgery, University of Dusseldorf, Germany
- **Francesco Sala**  
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- **Nader Sanai**  
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- **Silvio Sarubbo**  
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- **Gianantonio Spena**  
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- **Andrea Szélenyi**  
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- **Annalisa Trianni**  
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- **Valentina Vanoni**  
Department of Radiotherapy, APSS, Trento
- **Laura Vavassori**  
Department of Neurosurgery, APSS, Trento
- **Luca Zigiotta**  
Department of Neurosurgery, APSS, Trento

## Registration and admission fee

### Coordinators

Servizio Formazione APSS - Cristina Moletta, Paola Onorati

### Organizing Secretariat

Stefania Marinac - servizioformazione@apss.tn.it

### Iscrizione

On line su [www.ecmtrento.it](http://www.ecmtrento.it); le due sessioni sono accreditate separatamente:  
codice ecm theoretical session 12893  
codice ecm practical session 12872

### QUOTA DI PARTECIPAZIONE

#### Per professionisti esterni ad APSS

**THEORETICAL SESSION:** 100 posti  
• € 400 early registration (entro 13/03/2024)  
• € 500 late registration (dal 14/03/2024 e non oltre il 13/05/2024).

**THEORETICAL E PRACTICAL SESSION:** 20 posti  
• € 850 early registration (entro 13/03/2024)  
• € 1000 late registration (dal 14/03/2024 e non oltre il 13/05/2024).  
La quota di iscrizione comprende iscrizione, lunch e coffee break e accesso al materiale didattico su [www.ecmtrento.it](http://www.ecmtrento.it).

Alle quote sopra indicate va aggiunta l'aliquota IVA (22%) se dovuta.  
Le modalità di pagamento della quota di partecipazione saranno comunicate via email unitamente alla conferma di iscrizione, successivamente alla chiusura delle due scadenze per l'iscrizione (13/03/2024 - Early registration e 13/05/2024 - Late registration).

**Per i dipendenti APSS** a titolo gratuito; la partecipazione è in orario di servizio in timbratura causalizzata "formazione interna" tramite Angolo del dipendente.

#### Specializzandi

Solo Theoretical Session - uditori (senza crediti ecm) a titolo gratuito - richiedere registrazione tramite email a [servizioformazione@apss.tn.it](mailto:servizioformazione@apss.tn.it).  
Theoretical and Practical Session - partecipanti (con crediti ecm) con pagamento quota - iscrizione su [www.ecmtrento.it](http://www.ecmtrento.it).

### CONDIZIONI RILASCIO ATTESTATI ECM

Il rilascio dell'attestato è subordinato alla partecipazione al 90% delle ore, alla compilazione del questionario di gradimento e al superamento della valutazione di apprendimento. I questionari di gradimento e apprendimento saranno disponibili online su [www.ecmtrento.it](http://www.ecmtrento.it) e tramite l'APP ECMTrento dal termine dell'evento fino al 19/06/2024. Accreditato per medico, psicologo, (riservati alcuni posti per infermieri APSS di area neurochirurgica). Al termine dell'iter amministrativo di chiusura dati l'attestato ECM sarà scaricabile dal portale [www.ecmtrento.it](http://www.ecmtrento.it).

### Accommodation

#### Info & booking

Azienda per il Turismo Trento, Monte Bondone  
Via Torre Verde, 7 - 38122 Trento  
[www.trento.info](http://www.trento.info)



### Organised by:

Department of Neurosurgery  
Medical Education Service

Azienda Provinciale per i Servizi Sanitari, Trento, Italy

### Requested patronage:

Health ministry

### In collaboration with:



UNIVERSITÀ  
DI TRENTO

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Via Degasperi 79, 38123 Trento  
Finito di stampare nel mese di febbraio 2024

[www.apss.tn.it](http://www.apss.tn.it)

Trento June 13<sup>th</sup>-15<sup>th</sup> 2024

Congress Venue for Theoretical Session – Sala Filarmonica  
Via Giuseppe Verdi, 30 - Trento

Congress Venue for Practical Session – Sala Grande FBK  
Via S. Croce, 77 - Trento

Info: [servizioformazione@apss.tn.it](mailto:servizioformazione@apss.tn.it)



Theoretical and practical course on clinical and surgical applications  
of structural and functional connectivity



### LOCAL SCIENTIFIC COMMITTEE

Luciano Annicchiarico (Azienda Provinciale per i Servizi Sanitari, Trento)  
Paolo Avesani, (NILab, Bruno Kessler Foundation)  
Barbara Cassone (CIMeC, University of Trento)  
Ludovico Coletta (Bruno Kessler Foundation)  
Francesco Corsini (Azienda Provinciale per i Servizi Sanitari, Trento)  
Jorge Jovicich, (CIMeC, University of Trento)  
Manuela Moretto (CIMeC, University of Trento)  
Laura Vavassori (Azienda Provinciale per i Servizi Sanitari, Trento)

### COURSE DIRECTORS

Silvio Sarubbo  
Luca Zigiotta  
Department of Neurosurgery  
Azienda Provinciale per i Servizi Sanitari (APSS), Trento, Italy



Azienda Provinciale  
per i Servizi Sanitari  
Provincia Autonoma di Trento

## Introduction

The field of neurosurgery and neurology has undergone a remarkable evolution, closely paralleling the advancements in clinical and basic neurosciences worldwide. Specifically, neuro-oncology and surgery have fostered close collaborations with various disciplines such as neurophysiology, advanced imaging, neuroradiology, neuropsychology, and rehabilitation.

These interactions have facilitated the development, testing, and daily utilization of both invasive and non-invasive techniques in our departments for the study and treatment of patients with brain tumors. The integration of our clinical and scientific worlds has never been more evident, emphasizing the critical importance of interdisciplinary expertise in planning safe and effective treatments and enhancing our understanding of the intricate wiring diagram of the human brain and the neural physiopathology of brain tumors.

In 2015, ConnectBrain was established with the aim of providing a comprehensive course that caters to a diverse audience, including professionals from neurosurgery, neurology, neurophysiology, neuropsychology, rehabilitation medicine, and basic neurosciences. Building upon the success of the second edition in 2019, which attracted an international audience, we are proud to announce the launch of ConnectBrain Vol. III.

For this upcoming edition, we have meticulously assembled a distinguished international faculty comprising experts in the field. These esteemed individuals will enlighten us on the latest methodological advancements in the study of brain structure and function. Their valuable insights will enable us to gain a comprehensive understanding of these breakthroughs and explore their practical applications in the treatment of brain diseases.

## Theoretical Session

Thursday June 13<sup>th</sup>, 2024

Sala Filarmonica  
Via Giuseppe Verdi, 30 - Trento

08:30 - 09:00 Registration  
09:00 - 10:00 Opening - Authorities  
10:00 - 10:30 Lecture introduced by Silvio Sarubbo (Department of Neurosurgery, APSS, Trento)  
*The brain before and the brain today*  
Stephanie Forkel (Radboud University, The Netherlands)

### 10:30 - 11:15 SESSION I Introduction to advanced imaging

Chairmen: Annalisa Trianni (Department of Medical Physics, APSS, Trento), Carlo Cosimo Quattrocchi (CISMED, University of Trento)

*Principles of resting-state fMRI for human brain mapping*  
Bharat Biswal (Department of Radiology, New Jersey Institute of Technology, USA)

*Techniques and limitations in tractography of the human brain white matter*

Francois Rehault (University of Sherbrooke, Canada)

*How to track the brain: tools*

Paolo Avesani (Neuroinformatics Lab, Fondazione Bruno Kessler, Trento)

11:15 - 11:30 Discussion and Questions

11:30 - 12:00 Coffee Break

### 12:00 - 12:45 SESSION II Applications of advanced functional mapping imaging in glioma

Chairmen: Yuri Bozzi (Center for Mind and Brain Sciences, University of Trento), Giuseppe Della Pepa (Department of Neurosurgery, La Cattolica University, Rome)

*Extracting brain networks by resting-state fMRI*

Jorge Jovicich (Center for Mind Brain Sciences, University of Trento)

*Anatomy and features of brain networks at resting state*

Francesca Saviola (Center for Mind Brain Sciences, University of Trento)

*Tools and principles for analysis of functional connectivity and brain plasticity*

Ludovico Coletta (Neuroinformatics Lab, Fondazione Bruno Kessler, Trento)

12:45 - 13:00 Discussion and Questions

13:00 - 14:30 Lunch

### 14:30 - 15:15 SESSION III Evidences of brain connectivity

Chairmen: Carlo Miniussi (Center for Mind Brain Sciences, University of Trento), Gianantonio Spina (Department of Neurosurgery, Pavia University-Hospital)

*Dorsal and ventral pathways of the human brain by tractography*  
Laurent Petit (GIN-IMN, University of Bordeaux)

*Exploring structural connection with BraDiPho*

Laura Vavassori (Department of Neurosurgery, APSS, Trento)

*Brain connections explored by TMS*

Sandro Krieg (Department of Neurosurgery, University of Munich)

## Theoretical Session

Thursday June 13<sup>th</sup>, 2024

15:15 - 15:30 Discussion and Questions

### 15:30-16:15 SESSION IV Invasive mapping

Chairmans: Alessandro Olivi (Department of Neurosurgery, La Cattolica University, Rome), Giuseppe Barbagallo (Department of Neurosurgery, University of Catania)

*Direct electrical stimulation of the human brain for awake surgery*  
Emmanuel Mandonnet (Lariboisiere Hospital, University of Paris 7 Diderot)

*Intraoperative monitoring for asleep surgery*

Andrea Szélenyi (Neurophysiology Unit, University of Munich)

*Intraoperative monitoring for exploring supra- and infra-tentorial connections*

Francesco Sala (Department of Neurosurgery, University of Verona)

16:15 - 16:30 Discussion and Questions

16:30 - 17:00 Coffee Break

17:00 - 17:30 Lecture introduced by Jorge Jovicich (Center for Mind Brain Sciences, University of Trento)  
*The era of connectomics: the present and future for clinics*  
Michael D. Fox (Department of Neurology, Harvard Medical School, Boston, MA, US)

17:30 Take home messages and closure

Friday June 14<sup>th</sup>, 2024

09:00 - 09:30 Lecture introduced by Silvio Sarubbo  
*The surgery of brain gliomas across a century*  
Hugues Duffau (Department of Neurosurgery, University of Montpellier, France)

### 09:30 - 10:15 SESSION V Anatomical challenges in brain surgery

Chairmans: Maurizio Fornari (Department of Neurosurgery, Humanitas University), Vincenzo Esposito (Department of Neurosurgery, University of Rome "La Sapienza")

*Insula and temporal stem anatomy*

Federico Pessina (Department of Neurosurgery, Humanitas University, Milan)

*Perisylvian language networks*  
Alessandro De Benedictis (Bambino Gesù Pediatric Hospital, Rome)

*Subpial dissection and the access to the insula of Reil*

Michael Sabel (Department of Neurosurgery, University of Düsseldorf, Germany)

10:15 - 10:30 Discussion and Questions

10:30 - 11:00 Coffee Break

## Theoretical Session

Friday June 14<sup>th</sup>, 2024

### 11:00 - 11:45 SESSION VI Techniques for motor and cognitive mapping

Chairmans: Rocco Quatralo (Department of Neurology, ospedale dell'Angelo, ULSS 3 Serenissima, Venezia-Mestre), Diego Garbossa (Department of Neurosurgery, University of Turin)

*Motor and higher motor mapping in asleep and awake surgery*

Lorenzo Bello (Department of Neurosurgery, University of Milan)

*Monitoring higher cognitive functions in awake surgery*

Marco Fontanella (Department of Neurosurgery, University of Brescia)

*Outcomes and perspectives in glioma surgery*

Tamara Ius (Department of Neurosurgery, University Rome "La Sapienza")

11:45 - 12:00 Discussion and Questions

12:00 - 12:30 Lecture introduced by Francesco Sala (Department of Neurosurgery, University of Verona)  
*Advancements in genetics and biology of brain tumors*  
Alessandro Quattrone (Department of Cellular Computational and Integrative Biology, University of Trento)

12:30-14:00 Lunch

### 14:00 - 14:45 SESSION VII Cognitive testing and outcomes in brain tumor surgery

Chairmen: Filippo Flavio Angileri (Department of Neurosurgery, University of Messina), Jacopo Bonavita (Department of Rehabilitation Medicine, APSS, Trento)

*Neuropsychological testing and outcome*

Luca Zigiotta (Department of Neurosurgery, APSS, Trento)

*Novelties in intra-operative cognitive monitoring*

Guillaume Herbet (Department of Neurosurgery, University of Montpellier, France)

*Cognitive rehabilitation and brain plasticity*

Lorella Battelli (Italian Institute of Technology, Trento)

14:45 - 15:00 Discussion and Questions

### 15:00-16:00 SESSION VIII Standards and novelties in treatments of brain tumors

Chairmans: Mattia Barbareschi (CISMED, University of Trento),

Valentina Vanoni (Department of Radiotherapy, APSS)

*Neurosurgery and neuro-oncology: adapting medical treatments and surgical strategies*

Marion Rapp (Department of Neurosurgery, University of Düsseldorf)

*New frontiers in IDH-mutated gliomas treatment*

Roberta Rudà (Department of Neurology, University of Torino)

*New insights in the medical treatment of high-grade gliomas*

Giuseppe Lombardi (Department of Oncology, Istituto Oncologico Veneto)

*Radiotherapy and proton-beam therapy for treatment of intrinsic brain tumors*

Dante Amelio (Department of Protontherapy, APSS, Trento)

Friday June 14<sup>th</sup>, 2024

16:00 - 16:30 Discussion and Questions  
16:30 - 17:00 Coffee break  
17:00 - 17:30 Lecture introduced by Emmanuel Mandonnet (Lariboisiere Hospital, University of Paris 7 Diderot)  
*New insights in neuro-oncological surgery: technical and conceptual*  
Nader Sanai (Ivy Brain Tumor Center, Barrow Neurological Institute, Arizona, US)  
17:30 Take home messages and Closure

## Practical Session

Saturday June 15<sup>th</sup>, 2024

Sala Grande FBK  
Via S. Croce, 77 - Trento

Tutors: Luciano Annicchiarico, Paolo Avesani, Ludovico Coletta, Francesco Corsini, Alessandro De Benedictis, Stephanie Forkel, Jorge Jovicich, Manuela Moretto, Laurent Petit, Francois Rheault, Laura Vavassori, Luca Zigiotta.

### INTRODUCTION

09:00 – 09:15 *Introduction of team and activities*  
S. Sarubbo

09:15 – 09:45 *Tools for the study of perilesional structural and functional organization and for neurosurgical planning*  
P. Avesani, L. Coletta, J. Jovicich, M. Moretto, L. Vavassori, L. Zigiotta

### SESSION I

09:45 – 11:00 *Structural characterization of language pathways: exploration and visualization of microdissection (BraDiPho), virtual tracking of white matter fibers (Tractome)*

11:00 – 11:20 *Coffee break*

11:20 – 13:00 *Functional distribution of language network: exploration and visualization of DES-based functional network, extraction of resting state fMRI network (ReStNeuMap)*

13:00 – 14:00 *Lunch*

### SESSION II

14:00 – 16:00 *Structural characterization of motor pathways: exploration and visualization of microdissection (BraDiPho), virtual tracking of white matter fibers (Tractome)*

16:00 – 16:20 *Coffee break*

16:20 – 18:00 *Functional distribution of motor network: exploration and visualization of DES-based functional network, extraction of resting state fMRI network (ReStNeuMap)*

18:00 *Closure and certificates*