

Trento June 13th-15th 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



connect
BRAIN Vol. III

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 Zigliotto
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 pathophysiology 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 13th, 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

Theoretical Session

Thursday June 13th, 2024

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)

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

Theoretical Session

Friday June 14th, 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

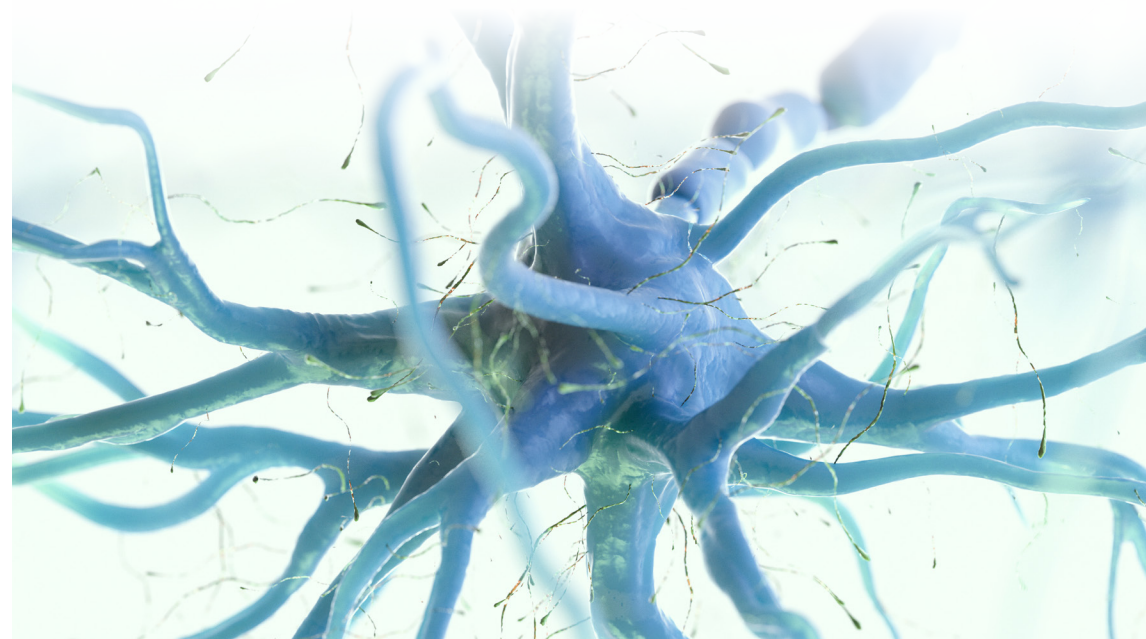
Alessandro De Benedictis (Bambino Gesù Pediatric Hospital, Rome)

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 14th, 2024

11:00 - 11:45 SESSION VI

Techniques for motor and cognitive mapping

Chairmans: Rocco Quatralè (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



Theoretical Session

Friday June 14th, 2024

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)

16:00 - 16:30 Discussion and Questions

16:30 - 17:00 Coffee break

17:00 - 17:30 Lecture introduced by Emmanuel Mandonnet (Lariboisière 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 15th, 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*

Practical Session

Saturday June 15th, 2024

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*

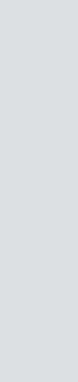


Faculty

- **Dante Amelio**
Department of Protontherapy, APSS, Trento
- **Filippo Flavio Angileri**
Department of Neurosurgery, University of Messina
- **Luciano Annicchiarico**
Department of Neurosurgery, APSS, Trento
- **Paolo Avesani**
Neuroinformatics Lab, Fondazione Bruno Kessler, Trento
- **Giuseppe Barbagallo**
Department of Neurosurgery, University of Catania
- **Mattia Barbareschi**
CISMed, University of Trento
- **Lorella Battelli**
Italian Institute of Technology, Trento
- **Lorenzo Bello**
Department of Neurosurgery, University of Milan
- **Bharat Biswal**
Department of Radiology, New Jersey Institute of Technology, USA
- **Jacopo Bonavita**
Department of Rehabilitation Medicine, APSS, Trento
- **Yuri Bozzi**
Center for Mind and Brain Sciences, University of Trento
- **Barbara Cassone**
CIMeC, University of Trento
- **Ludovico Coletta**
Neuroinformatics Lab, Fondazione Bruno Kessler, Trento
- **Francesco Corsini**
Department of Neurosurgery, APSS, Trento
- **Alessandro De Benedictis**
Bambino Gesù Pediatric Hospital, Rome
- **Giuseppe Della Pepa**
Department of Neurosurgery, La Cattolica University, Rome
- **Hugues Duffau**
Department of Neurosurgery, University of Montpellier, France
- **Vincenzo Esposito**
Department of Neurosurgery, La Sapienza University, Rome
- **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**
Department of Neurosurgery, La Sapienza University, Rome
- **Jorge Jovicich**
Center for Mind Brain Sciences, University of Trento
- **Sandro Krieg**
Department of Neurosurgery, University of Munich
- **Giuseppe Lombardi**
Department of Oncology, Istituto Oncologico Veneto
- **Emmanuel Mandonnet**
Lariboisiere Hospital, University of Paris, France

Faculty

- **Carlo Miniussi**
Center for Mind Brain Sciences, University of Trento
- **Manuela Moretto**
CIMeC, University of Trento
- **Alessandro Olivi**
Department of Neurosurgery, La Cattolica University, Rome
- **Federico Pessina**
Department of Neurosurgery, Humanitas University, Milan
- **Laurent Petit**
GIN-IMN, University of Bordeaux, France
- **Rocco Quatralè**
Department of Neurology, ospedale dell'Angelo, ULSS 3 Serenissima, Venezia-Mestre
- **Carlo Cosimo Quattrocchi**
CISMed, University of Trento
- **Alessandro Quattrone**
Department of Cellular Computational and Integrative Biology, University of Trento
- **Marion Rapp**
Department of Neurosurgery, University of Düsseldorf, Germany
- **Francois Rehault**
University of Sherbrooke, Canada
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Department of Neurology, University of Torino
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Center for Mind Brain Sciences, University of Trento
- **Gianantonio Spina**
Department of Neurosurgery, Pavia University-Hospital
- **Andrea Szélenyi**
Neurophysiology Unit, University of Munich
- **Annalisa Trianni**
Department of Medical Physics, APSS, Trento
- **Valentina Vanoni**
Department of Radiotherapy, APSS, Trento
- **Laura Vavassori**
Department of Neurosurgery, APSS, Trento
- **Luca Zigiotta**
Department of Neurosurgery, APSS, Trento



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Department of Neurosurgery

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