Third International Summer Institute on Network Physiology (ISINP)

Lake Como School of Advanced Studies – 24-29 July 2022

54875 TOTAL VISITORS LIVECOUNTER





Home

Application deadline: Extended till May 31, 2022



ISINP-2022 is supported by:

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Despite the vast progress and achievements in systems biology and integrative physiology in the last decades, we do not know the basic principles and mechanisms through which diverse physiological systems and organs dynamically interact and integrate their functions to generate a variety of physiologic states at the organism level.

The emerging new interdisciplinary field of Network Physiology aims to address this fundamental question. In addition to defining health and disease through structural, dynamical and regulatory changes in individual physiological systems, the new conceptual framework of Network Physiology focuses on the coordination and network interactions among diverse organ systems and sub-systems as a hallmark of physiologic state and function.

Novel concepts and approaches derived from recent advances in network theory, coupled dynamical systems, statistical and computational physics, signal processing and biological engineering show promise to provide new insights into the complexity of physiological structure and function in health and disease, bridging sub-cellular level signaling with inter-cellular interactions and communications among integrated organ systems and sub-systems. These advances form first building blocks in the methodological formalism and theoretical framework necessary to address the problems and challenges in the field of Network Physiology.

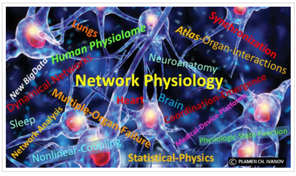

Figure. Lake Como International Summer Institute to focus on challenges, frontiers and future developments in the emerging field of Network Physiology.

This international summer institute will integrate empirical and theoretical knowledge across disciplines with the aim to understand in different contexts, from extensive data analysis and modeling approaches to clinical practice, how diverse physiological systems and sub-systems dynamically interact to produce health and disease.

This will be an interactive event with lectures ranging from physics and applied mathematics to neuroscience, physiology and medicine, covering a range of physiological systems from the cellular to the organ level, and will discuss the challenges, current frontiers and future developments in the emerging field of Network Physiology.

Presentations on basic research will be combined with lectures by leading physiologists and clinicians, working with large medical and ICU databases.

This International Summer Institute aims to provide a relaxed setting where lecturers and attendees interact throughout the course of the week. We have speakers, prominent leaders in their respective fields, who will present new directions in the theory of networks of dynamical systems, brain and neuronal dynamics, tissues and cell assemblies, pair-wise and network interactions of organ systems and sub-systems, and advanced methods from non-linear dynamics and synchronization phenomena.

The Summer Institute will address a diverse audience of graduate students, postdoctoral fellows, research scientists and faculty across a broad range of disciplines and fields from physics, applied mathematics and biomedical engineering to neuroscience, physiology and clinical medicine.

We look forward to meeting you in Como!

Plamen Ch. Ivanov
Summer Institute Organizer and Director

Course Language: English

This international institute builds on groundbreaking research in Network Physiology that has been made possible by support from the W. M. Keck Foundation.

The International Summer Institute on Network Physiology (ISINP 2022) acknowledges support from:

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Frontiers in Network Physiology is the first journal publishing rigorously peer-reviewed research dedicated to furthering our understanding of network physiology. This multidisciplinary, open-access journal is at the forefront of communicating impactful scientific discoveries to academics and clinicians.

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Frontiers is the 3rd most-cited and 9th largest research publisher and we publish groundbreaking discoveries by the world's top experts. We place the researcher at the center of everything we do and enable the research community to develop the solutions we need to live healthy lives on a healthy planet.

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Poster & Announcements



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ISINP Announcement Poster
(Network-Physiology-ISINP2022.pdf)



New journal Frontiers in Network Physiology published by Frontiers Media SA

We invite all ISINP-2022 attendees and speakers to contribute work on Network Physiology to the new journal Frontiers in Network Physiology.

Frontiers in Network Physiology is the first journal publishing rigorously peer-reviewed research dedicating to furthering our understanding of Network Physiology. Launched in April 2021, this multidisciplinary, open-access journal is at the forefront of communicating impactful scientific discoveries to academics and clinicians.

A recent Editorial on Network Physiology can be found here. More information is available on the journal home page.

frontiers
Frontiers in Network Physiology

Current Focus Issues on Network Physiology now open for submission in Frontiers in Network Physiology

Authors of studies presented at the ISINP-2022 Poster Sections I & II are specially encouraged to submit to the currently open Focus Issues in Frontiers in Network Physiology.

Past Focus Issues on Network Physiology:

1. *"The New Frontier of Network Physiology: From Temporal Dynamics to the Synchronization and Principles of Integration in Networks of Physiological Systems"* in the journal Frontiers in Physiology.

2. *"The new field of Network Physiology: redefining health and disease through networks of physiological interactions"* in the journal Physiological Measurement, IOPscience.

3. *"Focus on Network Physiology and Network Medicine"* in the journal New Journal of Physics, IOPscience.

Poster Session for participants at ISINP-2022

Applicants currently working on projects related to Network Physiology are encouraged to present at Poster Sessions I & II organized during the Summer Institute.

Applicants who plan to present at the Poster Sessions should include in their application material (Application Form) also a PDF with title, authors and two-page single space abstract structured in sections on Study Objectives, Methods, Results (possibly including 1 or 2 figures), Conclusions, and up to 5 References.

Poster Prizes for Young Researchers at ISINP-2022

Frontiers in Network Physiology supports the International Summer Institute on Network Physiology (ISINP-2022) with three **Poster Prizes for Young Researchers**.

Three cash prizes of $250, $150 and $100 will be presented to the 1st, 2nd and 3rd best posters respectively. The prizes will be announced at the end of the Poster Sessions. In addition, prize winners will be invited to submit their papers to Frontiers in Network Physiology. The papers will be published, subject to peer review, with **reduced publication fees.**

Readings related to Network Physiology as first steps in building a dynamic Atlas of Organ Interactions

1. *Network physiology reveals relations between network topology and physiologic function.* [*PDF*] Nature Communications 2012; 3: 702 doi: 10.1038/ ncomms1705.

2. *Network Physiology: how organ systems dynamically interact.* [*Open access*] PLOS ONE, 2015, 10(11): e0142143

3. *Major component analysis of dynamic networks of physiologic organ interactions* [*PDF*] Journal of Physics: Conference Series, 2015; 640, 012013

4. *Plasticity of brain wave network interactions and evolution across physiologic states.* [*Open access*] Frontiers in Neural Circuits, 2015; 9:62

5. Coexisting forms of coupling and phase-transitions in physiological networks. [*PDF*] Communications in Computer and Information Science 2014; 438: 270-287

6. Focus on the emerging new fields of network physiology and network medicine. [PDF] New Journal of Physics, 2016; 18:100201.

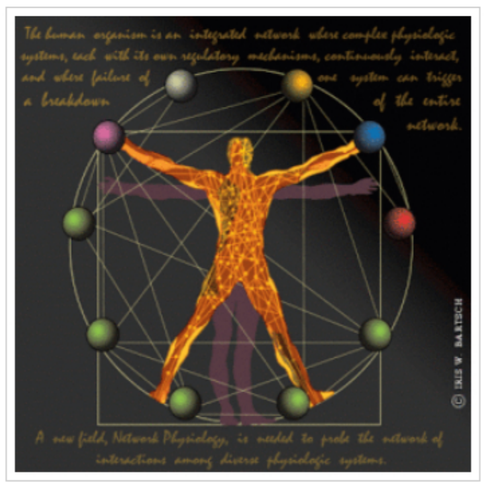
7. *Network Physiology of Exercise: Vision and Perspectives.* [*Open Access*] Frontiers in Physiology 2020; 11: 611550.

8. *Network Physiology of Cortico–Muscular Interactions.* [*Open Access*] Frontiers in Physiology. 2020; 11:558070.

9. *The New Field of Network Physiology: Building the Human Physiolome.* [*Open Access*] Frontiers in Network Physiology, 2021; 1:711778.

10. *Ensemble of coupling forms and networks among brain rhythms as function of states and cognition.* [*Open Access*] Communications Biology, 2022; 5: 82.

School Director



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Plamen Ch. Ivanov

Professor Ivanov, PhD, DSc, is Director of the Keck Laboratory for Network Physiology at Boston University, Associate Physiologist at Brigham and Women's Hospital, and Lecturer in Medicine at Harvard Medical School.

He has introduced innovative ways to analyze and model physiological systems, adapting and developing concepts and methods from modern statistical physics, nonlinear dynamics and networks theory. He has investigated the complex dynamics and underlying control mechanisms of a range of physiological systems, including studies on cardiac and respiratory dynamics, sleep-stage transitions, circadian rhythms, locomotion and brain dynamics, and has uncovered basic laws of physiologic regulation.

Professor Ivanov has pioneered the study of dynamic network interactions of physiological and organ systems. He is the originator and founder of the interdisciplinary field of Network Physiology. His current work focuses on developing methods of data analysis to investigate interactions among diverse organ systems and build a theoretical framework to understand how physiologic states and functions at the organism level emerge out of organ network interactions, and how diverse organ systems coordinate and integrate their functions to produce health or disease. His work lays the foundation of the *Human Physiolome*, a new type of BigData, containing streams of continuously recorded, high frequency, synchronized physiological signals under various states and clinical conditions, with an associated Atlas of network maps representing interactions among physiological systems at different levels in the human organism.

His discoveries have been broadly featured in the Media, including Scientific American, Science News, Nature Science Update, New Scientist, Physics World, Nature Medicine Research Highlights, Washington Post, Futurity Magazine, The Boston Globe.

Professor Ivanov is the Field Chief Editor of the journal Frontiers in Network Physiology. He is the founding Director of the International Summer Institute on Network Physiology (ISINP), Lake Como School of Advanced Study. Professor Ivanov is one of nine founding members of PhysioNet — the first NIH-sponsored data sharing research resource with millions of users and data downloads. He has served as editorial and advisory board member for several leading journals, including New Journal of Physics, EPL (Europhysics Letters), EPJ Nonlinear Biomedical Physics, Journal of Biological Physics (JOBP), Physiological Measurement and Frontiers in Physiology. His research has been funded by NIH, the W.M. Keck Foundation, the Office of Naval Research (ONR) and the US-Israel Binational Science Foundation (BSF).

For his pioneering applications of statistical physics and nonlinear dynamics to physiology and biomedicine, and for uncovering fundamental scaling and multifractal properties, self-organized criticality, sleep- and circadian-related phase transitions in physiologic dynamics, Professor Ivanov was elected Fellow of the American Physical Society in 2010. He is recipient of the Sustained Research Excellence Award of the Biomedical Research Institute, Brigham and Women's Hospital, Harvard Medical School (2009-2011); the Georgi Nadjakov Medal of the Bulgarian Academy of Sciences (2012), the Pythagoras (Pitagor) Prize for high achievements in interdisciplinary research bestowed by the President of Bulgaria (2014), and $ 1 milion W.M. Keck Foundation Award (2015).

Speakers

ISINP 2020 is supported by:

Third International Summer Institute on Network Physiology (ISINP)

Lake Como School of Advanced Studies – 24-29 July 2022



Program



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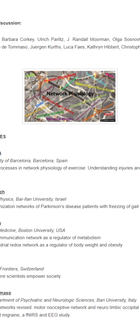
SCIENTIFIC PROGRAM
(download PDF here)



ISINP-Time – Table – 2022

day/time	Monday (25 July 2022)	Tuesday (26 July 2022)	Wednesday (27 July 2022)	Thursday (28 July 2022)	Friday (29 July 2022)
8:00	Registration				
8:40	Kurths	Hadley	Purdon	Zebbe	Purdon
9:05	La Rocca	Corkey	Stephens	Tecchio	Zapperi
10:10-10:40	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
10:40	Huang	Scholz	Moorman	Kurths	Thomas
11:35	Thurner	Hilbert	de Tommaso	Porta	Longtin
11:50	Stoop	Hardin	La Rocca	Bijou	Mijalkovic
12:10-14:05	Lunch break	Lunch break	Lunch break	Lunch break	Lunch break
14:40	Ivanchenko	Lehnertz	Moorman	Lehnertz	Stoop
14:35	Rosenblum	Stramaglia	Pereira	Pereira	Jolly
15:10-15:40	Hilbert	Coffee break	Coffee break	Coffee break	Coffee break
15:40	Stephens	Ravindran	Stramaglia	Rosenblum	Zebbe
16:25	Longtin	Bartsch	Bahuguna	Faes	Closing
16:50	Da Re				
17:00-18:30	Poster Session I	Poster Session II	Round Table Discussion	20:00 Dinner	

Time for each lecture is 30 min, followed by 5 min questions.

Round Table Discussion:

Klaus Lehnertz, Barbara Corkey, Ulrich Parlitz, J. Randall Moorman, Olga Sosnovtseva, Robert J. Thomas, Marina de Tommaso, Juergen Kurths, Luca Faes, Kathryn Hilbert, Christopher Stephens.



LECTURE TITLES

Natalia Balagué
INEFC, University of Barcelona, Barcelona, Spain
1. Perception processes in network physiology of exercise. Understanding injuries and task disengagement

Ronny P. Bartsch
Department of Physics, Bar-Ilan University, Israel
1. EEG synchronization networks of Parkinson's disease patients with freezing of gait

Barbara Corkey
Department of Medicine, Boston University, USA
1. The redox communication network as a regulator of metabolism
2. The mitochondrial redox network as a regulator of body weight and obesity

Caterina Da Re
Editorial Office, Frontiers, Switzerland
1. Frontiers: where scientists empower society

Marina de Tommaso
Neurology, Department of Psychiatric and Neurologic Sciences, Bari University, Italy
1. The cortical networks revised: motor nociceptive network and neuro limbic occipital networks in chronic pain and migraine, a fMRIS and EEG study

Luca Faes
Department of Engineering, University of Palermo, Italy
1. A new information-theoretic approach to analyze physiological networks of oscillatory and spike train processes

Charles C. Hardin
Department of Pulmonary and Critical Care Medicine, Massachusetts General Hospital, USA Harvard Medical School, USA
1. Physiologic modeling of respiratory, immune and coagulation dynamics in critical COVID-19

Shlomo Havlin
Department of Physics, Bar-Ilan University, Israel
1. Network applications in physiology and biology
2. Network science and applications

Kathryn A. Hibbert
Department of Pulmonary and Critical Care Medicine, Massachusetts General Hospital, USA Harvard Medical School, USA
1. Heterogeneity in critical illness: challenges and opportunities
2. COVID-19: A case for Network Physiology

Plamen Ch. Ivanov
Keck Laboratory for Network Physiology, Department of Physics, Boston University, USA

Brigham and Women's Hospital, Division of Sleep Medicine, Harvard Medical School, Boston, USA
1. The new field of Network Physiology: mapping the Human Physiome
2. Physiologic network interactions: novel hallmark of physiological state and function

Mohit Kumar Jolly
Centre for BioSystems Science and Engineering, Indian Institute of Science, Bangalore, India
1. Network dynamics driving cancer metastasis: from design principles to therapeutic approaches

Jürgen Kurths
Department of Physics, Humboldt University Berlin, Germany

Potsdam Institute for Climate Impact Research, Germany
1. Synchronization and chimera phenomena in neural networks with time delay and noise
2. Quantifying stability in deterministic and stochastic complex networks and its application

Klaus Lehnertz
Department of Epileptology at Bonn University Medical Center, Germany
1. Biological rhythms and evolving functional brain networks
2. Controlling brain networks. Insights from epilepsy

André Longtin
Physics Department, University of Ottawa, ON Canada
1. Non-monotonic complexity in multi-delay physiological feedback systems
2. Noise-induced and noise-perturbed physiological rhythms

Gorana Mijalkovic
Department of Power, Electronic and Communication Engineering, University of Novi Sad, Serbia
1. A new information-theoretic framework to analyze neural spike trains and physiological point processes

Randall Moorman
Department of Medicine, Physiology, Biomedical Engineering, University of Virginia, USA
1. Challenges: applying network physiology to clinical medicine
2. Applied network physiology: new hammers, new nails

Ulrich Parlitz
Max Planck Research Group Biomedical Physics,
Max Planck Institute for Dynamics and Self-Organization, German
1. The nonlinear dynamics of the heart: collective excitation in networks of cardiac cell
2. Modelling and controlling complex dynamics in cardiac networks

Louis M. Pecora
U.S. Naval Research Laboratory, USA
1. Statistics of attractor embeddings in Reservoir Computing
2. Choosing optimal Reservoir Computers

Caterina A. M. La Porta
Center for Complexity and Biosystems, University of Milan, Italy
Department of Environmental Science and Policy, University of Milan, Italy
1. Classification of triple-negative breast cancers through a Boolean network model of the epithelial-mesenchymal transition

Alberto Porta
Department of Biomedical Sciences for Health, University of Milan, Milan, Italy
Department of Cardiothoracic, Vascular Anesthesia and Intensive Care, IRCCS Policlinico San Donato, San Donato Milanese, Milan, Italy
1. A network physiology approach to cardiovascular, cardiorespiratory and cerebrovascular dynamic interactions

Rossella Rizzo
Department of Engineering, University of Palermo, Italy
Keck Laboratory for Network Physiology, Department of Physics, Boston UniversityUSA
1. Network physiology of cortico-muscular interactions: reorganization with sleep-stages transitions and neurodegenerative disorders

Marianna La Rocca
Physics Department, Bari Aldo Moro University, Bari, Italy
Laboratory of Neuro Imaging, Stevens Neuroimaging and Informatics Institute,
Keck School of Medicine, University of Southern California, Los Angeles, CA, USA
1. Network physiology to study neurological diseases and chronic pain investigating different brain scales and data

Michael G. Rosenblum
Department of Physics and Astronomy, University of Potsdam, Germany
1. Controlling collective synchrony by pulsatile stimulation
2. Inferring phase and amplitude response of oscillatory systems from observations

Olga Sosnovtseva
Department of Biomedical Sciences, University of Copenhagen, Denmark
1. Kidney function: Optimization of nephrovascular network
2. Network Physiology aspects of diabetic kidney disease

Christopher R. Stephens
Centro de Ciencias de la Complejidad, Instituto de Ciencias Nucleares,
Universidad Nacional Autónoma de México
1. From the Physiolome to the Conductome and back: A Conceptual Framework
2. Applications to Obesity and Metabolic Disease of the Physiolome and Conductome

Ruedi Stoop
Department of Physics & Neuroinformatics, ETH Zurich, Switzerland
1. Network physiology, criticality and computation – facts and fiction
2. What complex-type computations are performed by biological neural networks?

Sebastiano Stramaglia
Dipartimento Interateneo di Fisica, Università degli Studi di Bari Aldo Moro, Italy
1. Modelling high-order behaviors in Network Physiology with Information Theory
2. Localizing high order effects in time and across a complex system

Franca Tecchio
Laboratory of Electrophysiology for Translational Neuroscience,
National Research Council, Italy
1. Cortico-muscular synchronization dependence on age, body side and visual feedback

Robert J. Thomas
Harvard Medical School, Division of Pulmonary, Critical Care & Sleep,
Beth Israel Deaconess Medical Center, USA
1. Sleep as a network in health and disease
2. Sleep transition networks – onset, offset, arousals and awakenings

Alexey Zaikin
Computational and System Medicine, Department of Mathematics and Institute for Women's Health, University College London, UK
1. Longitudinal, deep, and network biomarkers. Parenclinic and syndilic network analysis
2. Intelligence and consciousness in genetic-neuron astrocyte networks

Stefano Zapperi
Center for Complexity and Biosystems, University of Milan, Italy
Department of Physics, University of Milan, Italy
1. Information optimized multilayer network representation of high density electroencephalogram recordings

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Participants



ISINP-2022 is supported by:

List of Participants:

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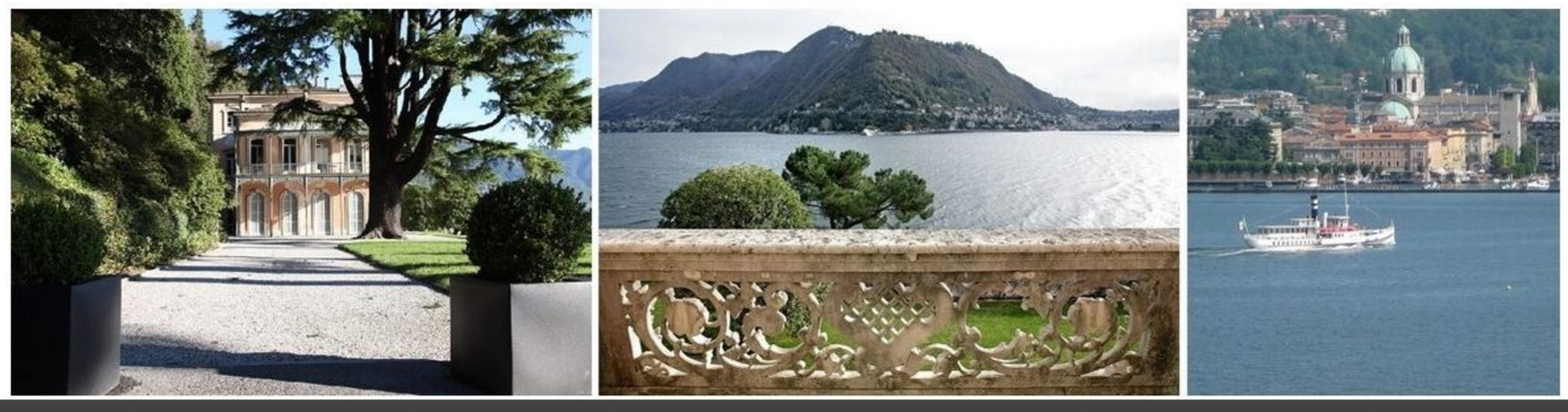
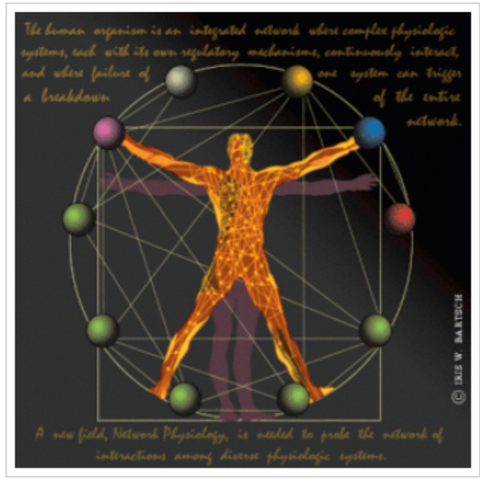


Application & Deadlines



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Application:
The International Summer Institute on Network Physiology (ISINP) is open to maximum 46 PhD. students, postdoctoral fellows, research scientists and faculty.

The number of students accepted may decrease in relation to the pandemic situation.

The school fee is:
– € 450,00 (VAT 22% included) and includes all lectures, course material, Wi-Fi connections, lunches, coffee breaks.
– € 50,00 (VAT 22% included) social program/dinner for participants and accompanying persons *

*No tickets for social program/dinner will be available during the school. On the invoice you will find the following description: "Social event".

How to apply:
All applicants have to fill out the application form and to submit a short CV, list of publications, and a motivation letter for their participation in the Summer Institute. (see Application Form)

Applicants working on projects related to Network Physiology are encouraged to submit a two-page abstract summary of their work as PDF (see Application Form) and to present at the poster session during the Summer Institute (see Poster & Announcements).

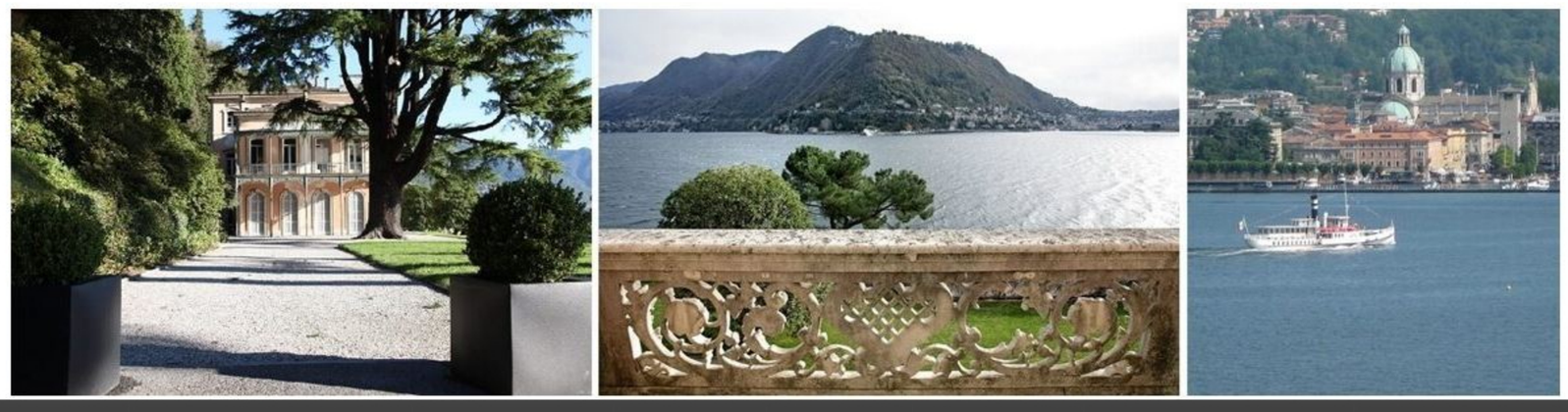
We encourage potential applicants to submit their documents well in advance of the application deadline.
Application materials will be reviewed and applicants will be notified on a regular basis.

The application materials should be sent to:

Prof. Plamen Ch. Ivanov
Email: lab.network.physiology[AT]gmail.com * * [AT] = @

Deadlines:

- Application: **31 May, 2022**
- Notification of acceptance: **31 May, 2022**
- Registration (only accepted participants): **30 June, 2022**



Application Form



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To submit an application please fill in the personal information form and send the required submission materials (listed below) as PDFs.

Personal information form (required):

Title

Name

Surname

Department

Institution

Street

Postal code

Town

Country

Phone

Email

Application materials for students and postdocs

Required: curriculum vitae; list of publications; motivation letter.

Optional: title and two-page abstract for poster presentation.(See Poster & Announcements)

[pdf, max 2MB]

Scegli file Nessun file selezionato

Application materials for faculty

Required: curriculum vitae; list of publications.

Optional: title and two-page abstract for poster presentation.(See Poster & Announcements)

[pdf, max 2MB]

Scegli file Nessun file selezionato

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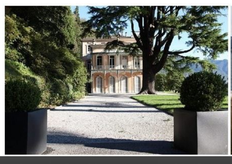



Registration Form



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Please note!

" This registration form is only for accepted applicants!
Tickets for social dinner are about to finish!

Payment information (required)

Registration fees:

– The school fee is € 450,00 (VAT 22% included) and includes all lectures, course material, Wi-Fi connections, lunches, coffee breaks.

– School fee (all lectures, course material, Wi-Fi connections, lunches, coffee breaks) with social program/dinner fee included is € 500,00 (VAT 22% included)

– Only for accompanying persons: social program/dinner, fee is € 50,00 (VAT 22% included). On the invoice you will find the following description: "Social event".
NO dinner tickets will be available during the school, if you want to participate you have to pay now the social dinner fee.

Personal information (required)

Title

Name

Surname

Personal Address

Fiscal Code (mandatory for italian citizens and residents)

Department

Institution

Street

Postal code

Town

Country

Phone

Email

Dietary requirements (dietary restrictions, allergies or intolerances)

☐ By submitting this registration form you authorise Fondazione Alessandro Volta to include your personal data on its mailing list for the distribution of information material. We will never share your personal data with any third party.
According to the General Data Protection Regulation 2016/679, you may have access to these details at any time and request their modification and cancellation sending an email to:
info@lakecomoschool.org

Payment information (required)
Registration fees
○ The school fee is 450 € (VAT 22% included) and includes all lectures, course material, Wi-Fi connections, lunches, coffee breaks.
○ 50 € (VAT 22% included) social program/dinner for accompanying persons.
○ School fee (all lectures, course material, Wi-Fi connections, lunches, coffee breaks) with social program/dinner fee included is € 500,00 (VAT 22% included)

Payment option:
○ by credit card online ○ by bank transfer
*For credit card payment click the "pay now" button at the bottom of this page.
*For bank transfer: make it out to Fondazione Alessandro Volta, ref. "ISINP-3 school" drawn on Banca di Credito Cooperativo Alta Brianza e Laghi, Como, Via Rubini 3, 22100 Como
IBAN: IT13L 08329 10900 00000 0300088 – BIC: ICRAITRR950
Please, choose between receipt/invoice addressed to you or to your Institution:

For this payment I would like to receive a receipt/invoice addressed to:
○ myself ○ my Institution

Receipt/invoice header* (please, indicate receipt/invoice header and full address):

For companies - VAT id/Fiscal code* (mandatory if you ask for a receipt/invoice addressed to your Institution):

For Italian citizens and residents - Fiscal code* (mandatory if you ask for a receipt/invoice addressed to you):

Important:
- For invoices addressed to Italian Universities, please contact the secretariat (mariagiovanna.falasconi@fondazionealessandrovolta.it) No payment must be made in advance by participants in this case.
- Invoices cannot be changed once they have been issued
- Invoices are issued in Euros
- Payments are handled by Paypal Secure System and can ben made with any credit card. No paypal account is needed.

☐ By submitting this registration form you authorise Fondazione Alessandro Volta to include your personal data on its mailing list for the distribution of information material. We will never share your personal data with any third party.
According to the General Data Protection Regulation 2016/679, you may have access to these details at any time and request their modification and cancellation sending an email to:
info@lakecomoschool.org

Please remember to FIRST click on the "Send" button and then go ahead with Paypal payment. Otherwise the registration form will not be sent.

Send

ISINP-3 Registration fees

Registration fee € 450

Please indicate the name of the participant (if different from the person who pays) :

Pay Now

54882 TOTAL LIVECOUNTER VISITORS



Venue & Accommodation



ISINP-2022 is supported by:

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Fondazione Alessandro Volta

Venue

Villa del Grumello
More information can be found at:
Fondazione Alessandro Volta
Via per Cernobbio 11, 22100 Como, ITALY



Accommodation

Villa del Grumello has a **guest house** ("foresteria"). The rate is **36,30 euros** per night (breakfast not included: a kitchen for self preparing breakfast is available). Please notice that **only shared accommodation with other students is allowed** (mixed dorm – no accompanying persons).

You can **download** the guest house form here.
Dead line for guest house reservation: July 10th

Here you can download a hotel list to contact directly.

PLEASE NOTE THAT IT IS HIGH SEASON, THERE ARE A LOT OF TOURIST IN COMO. WE RECOMMEND TO BOOK EARLY.

COMO HOSTEL

We have a special agreement with Ostello Bello https://ostellobello.com/en/hostel/como/.

You can ask for availability and prices writing to: booking.como@ostellobello.com (don't use their website reservation form).

Important: specify in the e-mail that you are "Fondazione Volta Student", you will have a special discount!

How to get there
Click here for further information on how to reach Como.

Villa del Grumello is 20 min on foot from the city center – you can also take a bus, line 6 and line 11.

Download the timetable. Bus stop: "Como Via Regina Piscine Villa Olmo" (it is not indicated in the timetable, but it's just after "Villa Olmo").

From the main Train Station (Como S. Giovanni), the nearest bus stop to catch line 6 and 11 is "Piazzale Rocchetto".

How to get to Como from Milan Malpensa Airport

At the ticket office of the *Malpensa Express* train station, located at Terminal 1, underground floor, buy a ticket for the trip MALPENSA-SARONNO-COMO (ca. 10 Euros, one way). Two separate tickets will be issued (Malpensa-Saronno and Saronno-Como), which must be stamped before getting on the train.

For those landing at Terminal 2, a free shuttle-bus service connecting the two Terminals operates 24 hours a day, with departures every 7 minutes during the day, and every 30 minutes at night (from 10.45 p.m. to 5.15 a.m.).

Take a *Malpensa Express* train stopping in SARONNO (ca. 30-minute ride; please note that not all the *Malpensa Express* rides make intermediate stops between the airport and Milan). Get off in SARONNO and take a *Trenord* train to COMO (typically from track #2, ca. 30-minute ride).

There are around 50 daily *Malpensa Express* rides stopping in Saronno.
Information upon this service can be retrieved at http://www.malpensaexpress.it/en/

There are 3 *Trenord* train stations in Como, COMO NORD CAMERLATA, COMO NORD BORGHI, and COMO NORD LAGO. Participants going to any of the hotels located in the city center or heading directly to the Conference Venue, should preferably get off at the last train station, COMO NORD LAGO, Piazza Matteotti.

Information upon *Trenord* can be retrieved in Italian at http://www.trenord.it/it/home.aspx
For the timetable, please consult http://www.trenord.it/it/servizi/motore-orario.aspx

Once arrived at COMO NORD LAGO, a 15-minute walk allows to reach Villa del Grumello.

How to get to Como from Milan Linate Airport

Outside the arrivals floor, take either bus 73 (making intermediate stops) or bus X73 (without intermediate stops) heading to SAN BABILA underground station in Milan (ca. 20-minute ride).

In SAN BABILA, take the underground (red line, also called line 1) directed either to BISCEGLIE or to RHO FIERA MILANO. Get off at CADORNA station (4 stops, 8-minute ride). A single ticket for both rides has to be bought in advance inside the air-terminal, at one of the newspapers stands (1.50 Euros).

A map of Milan underground lines can be found at
http://www.nbts.it/milano/mappa_metropolitana_1.htm

Once in CADORNA, exit to the ground level following the arrows labeled "to trains", to enter *Trenord* train station. At the *Trenord* ticket office, buy a ticket to COMO (ca. 5 Euros, one way, 1-hour ride).

There are 3 *Trenord* train stations in Como, COMO NORD CAMERLATA, COMO NORD BORGHI, and COMO NORD LAGO. Participants going to any of the hotels located in the city center or heading directly to the Conference Venue, should preferably get off at the last train station, COMO NORD LAGO, Piazza Matteotti.

Information upon *Trenord* can be retrieved in Italian at http://www.trenord.it/it/home.aspx
For the timetable, please consult http://www.trenord.it/it/servizi/motore-orario.aspx
Once arrived at COMO NORD LAGO, a 15-minute walk allows to reach Villa del Grumello.

How to get to Como from Bergamo Orio al Serio Airport

Outside the arrivals floor, take an ORIOSHUTTLE bus heading to MILANO STAZIONE CENTRALE (Milan Central Train Station; ca. 45-minute ride, 5 Euros).

Information about this service can be found at http://www.orioshuttle.com/_eng/
For the timetable, please consult directly http://www.orioshuttle.com/pdf/OS_01_ITA.pdf

Once arrived at MILANO STAZIONE CENTRALE, you can either

a. Take a fast train from there to COMO STAZIONE SAN GIOVANNI (Como Central Railway Station), along the Milano-Chiasso-Gotthard line (ca. 35-minute ride, 10 Euros).

To retrieve information upon this service, please consult http://www.trenitalia.com/

b Take the underground (green line, also called line 2) heading to ABBIATEGRASSO or ASSAGO. Get off at

b.1 CADORNA (5 stops, 10-minute ride). A ticket for this ride can be bought at one of the newspapers stands (1.50 Euros) inside the underground station.

Once in CADORNA, exit to the ground level following the arrows labeled "to trains", to enter *Trenord* train station. At the *Trenord* ticket office, buy a ticket to COMO (ca. 5 Euros, one way, 1-hour ride). There are 3 *Trenord* train stations in Como, COMO NORD CAMERLATA, COMO NORD BORGHI, and COMO NORD LAGO. Participants going to any of the hotels located in the city center or heading directly to the Conference Venue, should preferably get off at the last train station, COMO NORD LAGO, Piazza Matteotti.

Information upon *Trenord* can be retrieved in Italian at http://www.trenord.it/it/home.aspx
For the timetable, please consult http://www.trenord.it/it/servizi/motore-orario.aspx

Once arrived at COMO NORD LAGO, a 15-minute walk allows to reach Villa Olmo, Via Cantoni 1.

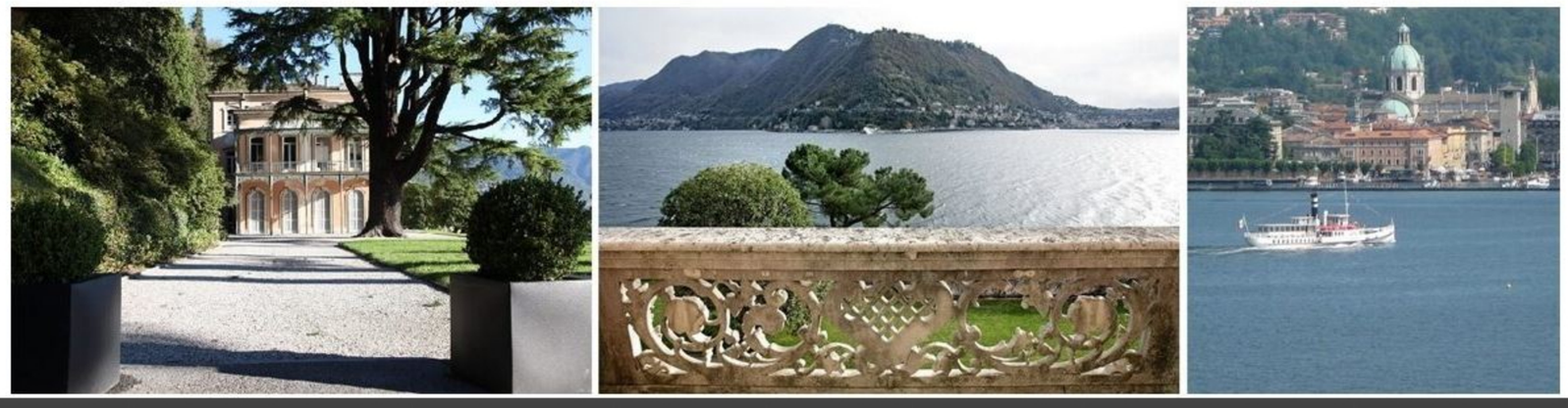
b.2 PORTA GARIBALDI STATION (2 stops, 4-minute ride). A ticket for this ride can be bought at one of the newspapers stands (1.50 Euros) inside the underground station. Once in PORTA GARIBALDI, exit to the ground level following the arrows labeled "to trains", to enter *Trenitalia* train station. At the *Trenitalia* ticket office, buy a ticket to COMO SAN GIOVANNI (ca. 5 Euros, one way, 1-hour ride).

For the timetable, please consult http://www.trenord.it/it/servizi/motore-orario.aspx
Once arrived at SAN GIOVANNI, a 15-minute walk allows to reach Villa del Grumello.

Important! For all school speakers and attendees!

We have learned that third part companies are contacting school speakers and attendees offering to make travel arrangements (hotel and flight bookings) on our behalf and asking for credit card details in order to proceed. PLEASE NOTE these agencies are not authorized by us, this is most likely a fraud.

For any doubt do not hesitate to contact us. Thank you!



Contact US



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Fondazione Alessandro Volta

For inquiries about the scientific aspects of the International Summer Institute on Network Physiology and applications to attend, please contact:

Prof. Plamen Ch. Ivanov

Director, Keck Laboratory for Network Physiology

Email: lab.network.physiology[AT]gmail.com * * [AT] = @

For inquiries about the venue of the school, travel, accommodation, and registration procedure, please contact the Organizing Secretariat at Fondazione Alessandro Volta: info@lakecomoschool.org

Mariagiovanna Falasconi mariagiovanna.falasconi@fondazionealessandrovolta.it

Third International Summer Institute on Network Physiology (ISINP)

Lake Como School of Advanced Studies – 24-29 July 2022

54882 LIVECOUNTER
TOTAL VISITORS





Photo



54882 TOTAL LIVECOUNTER
VISITORS