

## Sunday, Sept. 18<sup>th</sup> 2022

18.30 – 21.30 Welcome reception

## Monday, Sept. 19<sup>th</sup> 2022

09.00 – 09.15 **Ursula Wolf**, President of ISOTT  
Greetings and welcome

09.15 – 09.30 **Irene Schmidli**  
Welcome to Centro Stefano Franscini

### Chairs

### S. Pias, A. Sudakou

09.30 – 10.10 **M. Frenz**, Keynote lecture  
Quantitative optoacoustic oximetry imaging using multiple illumination

10.10 – 10.25 **H. Swartz**  
A critical analysis of possible mechanisms for the oxygen effect in FLASH

10.25 – 10.40 **A. Kalyanov**  
Technical approaches to speed up near-infrared optical tomography

10.40 – 11.10 **Coffee break**

### Chairs

### H. Wabnitz, A. Kalyanov

11.10 – 11.50 **A. Caicedo**, Keynote lecture  
Current trends in the monitoring of the neonatal brain

11.50 – 12.05 **H. Suzuki**  
Network analysis for pathway-dependent brain capillary responses to neural activation in the mouse somatosensory cortex

12.05 – 12.20 **T. Cantieni**  
Precision and repeatability of tissue oxygen saturation measurements using textile-integrated polymer optical fibres

12.30 – 14.00 **Lunch**

### Chairs

### M. Frenz, H. Zohdi

14.00 – 14.40 **H. Wabnitz**, Keynote Lecture  
Phantom-based performance assessment in fNIRS and tissue oximetry of the human brain – achievements and challenges

14.40 – 14.55 **A. Sudakou**  
Two-layered blood-lipid phantom for simulating dynamic oxygen saturation changes in both layers

14.55 – 15.10 **L. Tong**  
Fabrication of multilayer microfluidic-based tissue-mimicking phantom for optical methods

15.10 – 15.25	<b>M. Ackermann</b> Generalization and application of deep-learned near-infrared optical tomographic reconstruction
15.25 – 15.40	<b>L. Lanini</b> Time domain near infrared optical tomography utilizing full temporal data: a simulation study
<b>15.40 – 16.10</b>	<b>Coffee break &amp; posters</b>
16.10 – 17.40	Poster presentations
19.00	Dinner at Monte Verità

## Tuesday, Sept. 20<sup>th</sup> 2022

### Chairs

### O. Kress, M. Hashem

09.00 – 09.40	<b>C. Cooper</b> Going for Gold: Near Infrared Spectroscopy in elite sport
09.40 – 09.55	<b>X. Hu</b> Relationship between left-right dominance of prefrontal cortex activity and heart rate during rest and task periods: Near infrared spectroscopy study
09.55 – 10.10	<b>F. Scholkmann</b> Infradian rhythms in cerebral oxygenation and blood volume in humans at rest: A 5 year-long study
10.10 – 10.25	<b>M. Lacerenza</b> Separation of systemic and cerebral hemodynamic variation during goal-oriented and non-goal-oriented motor tasks
10.25 – 10.40	<b>R. Re</b> Cerebral resting state oscillations with TD-fNIRS: a proof of concept

**10.40 – 11.10**

### **Coffee break**

### Chairs

### M. Wolf, X. Hu

11.10 – 11.50	<b>E. Nemoto</b> A new paradigm for neuroprotection in acute ischemic stroke
11.50 – 12.05	<b>M. Hashem</b> The effect of hypercapnia on cortical metabolic rate and mitochondrial redox status
12.05 – 12.10	<b>E. Nemoto</b> Remembering John Severinghouse.
<b>12.15 – 13.45</b>	<b>Lunch</b>
14.00	Excursion to Cardada/Cimetta, the mountain above Locarno ( <a href="http://www.cardada.ch/">http://www.cardada.ch/</a> ). Ascent by cable car.

Possibility of short hikes in the surroundings of the hill top. Dinner at TBD  
Take appropriate shoes and clothing with you.

## Wednesday, Sept. 21<sup>st</sup> 2022

### Chairs

### F. Scholkmann, F. Lange

09.00 – 09.40

**J. LaManna / M. Puchowicz**, Keynote lecture  
HIF1a : The GOOD, The BAD and The UGLY

09.40 – 09.55

**T. Aoki**  
Insufficient oxygen supplementation during cardiopulmonary resuscitation leads to unfavourable biological response while hyperoxygenation contributes to metabolic compensation

09.55 – 10.10

**A. Ghysels**  
Response time of oxygen levels in stacked biological membranes from molecular dynamics simulations

10.10 – 10.25

**C. Amendola**  
Monitoring endothelial health of COVID-19 patients at ICU: a TD-NIRS and DCS non-invasive platform

10.25 – 10.40

**S. Pias**  
Oxygen conduction through the water pores of aquaporin-1 protein channels

10.40 – 11.10

**Coffee break**

### Chairs

### I. Tachtsidis, M. Marozzi

11.10 – 11.50

**G. Taga**, Keynote lecture  
Neurovascular and glymphatic dynamics during sleep in the developing brain

11.50 – 12.05

**D. Yacheur**  
Imaging brain blood vessels using near infrared optical tomography (NIROT)

12.05 – 12.20

**D. Aksenov**  
Brain tissue oxygen and BOLD fMRI under different levels of neuronal activity

12.30

**Lunch**

Free afternoon and evening (no dinner organized)

ISOTT EC meeting

## Thursday, Sept. 22<sup>nd</sup> 2022

### Chairs

### K. Sakatani, J. Jiang

09.00 – 09.40

**G. Bale**, Keynote Lecture

In-vivo optical monitoring of cerebral metabolism: from newborn brain injury to dementia

09.40 – 09.55

**M. Marozzi**

Block of the angiotensin pathways effects flow-volume spirometry in patients with SARS-CoV-2 infection

09.55 – 10.10

**B. Reeder**

A multi-targeted approach to engineer a safer generation of hemoglobin-based oxygen carrier

10.10 – 10.25

**F. Lange**

Neonatal brain temperature monitoring based on broadband near-infrared spectroscopy

10.25 – 10.40

**D. Adingupu**

Reduced cerebral tissue oxygen saturation correlates with impaired cognitive function in people with post-COVID-19 condition.

**10.40 – 11.10**

**Coffee break & posters**

11.10 – 12.30

Poster session

**12.30 – 14.00**

**Lunch**

### Chairs

### U. Wolf, J. LaManna

14.00 – 14.40

**O. Thews**, Keynote Lecture

Significance of the acidic tumor environment for malignant potential: Not only hypoxia counts

14.40 – 14.55

**P. Vaupel**

Hyperhydration of cancers: A prevalent trait strongly increasing O<sub>2</sub>, CO<sub>2</sub> and glucose diffusivity and improving thermophysical tissue properties in solid malignancies

14.55 – 15.10

**F. Schiavo**

The impact of heterogeneous cell density in hypoxic tumours treated with radiotherapy

15.10 – 15.20

**J. LaManna**

Remembering David Harrison

15.20 – 15.30

**U. Wolf**

Closing of ISOTT 2022

**15.30 – 16.00**

**Coffee break**

16.00 – 17.00

ISOTT general meeting (also non-members are welcome)

**From 19.00**

**Conference dinner and Awards ceremony**