



5th *Virtual* BioBrillouin Meeting

12th-14th October 2021

Program

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Overview of program (all times are Central European Times CET = GMT+1)

Tuesday 12th October

- 17:30-17:50** Opening remarks / announcements
- 17:50-18:20** Inauguration of International BioBrillouin Society
- 18:20-19:00** Plenary Talk
- 19:00-19:45** Poster presentations + Poster Q&A session
- 20:00-21:00** Social Event

Wednesday 13th October

- 13:00-15:00** *SESSION I: NOVEL BIOLOGICAL APPLICATIONS & INTERPRETATION A*
- 15:30-17:15** *SESSION II: CORRELATIVE & COMPARATIVE TECHNIQUES*
- 17:45-19:45** *SESSION III: NOVEL BIOLOGICAL APPLICATIONS & INTERPRETATION B*

Thursday 14th October

- 13:00-15:10** *SESSION IV: INSTRUMENT DEVELOPMENT & DATA ANALYSIS A*
- 15:30-17:35** *SESSION V: INSTRUMENT DEVELOPMENT & DATA ANALYSIS B*
- 18:00-20:00** *SESSION VI: MEDICAL APPLICATIONS*
- 20:00-20:30** Announcement of Poster & ECI prize winners & closing statement

Tuesday 12th October (all times CET)

OPENING SESSION

17:30-17:50 **Introduction & announcements** [Various]

17:50-18:20 **Inauguration of the *International BioBrillouin Society*.**
[Kareem Elsayad, Medical University of Vienna]

18:20-19:00 **Brillouin microscopy for cell and tissue biomechanics**
[Plenary talk]
Giuliano Scarcelli
(University of Maryland, USA)



19:00-19:45 **FLASH POSTER PRESENTATIONS**
Followed by Q&A

19:45-20:00 BREAK

20:00-21:00 **SOCIAL EVENT** (Vienna treasure hunt/quiz with prizes)

Wednesday 13th October (all times CET)

SESSION I: NOVEL BIOLOGICAL APPLICATIONS & INTERPRETATION A

(Chairs: Celia de Sousa & Thomas Dehoux)

13:00-13:25 IT1: Applications of Brillouin imaging in 3D bioprinting and tissue engineering *[Invited]*

Irina Kabakova
(University of Technology Sydney, Australia)



13:25-13:50 IT2: 3D Brillouin imaging: challenges and solutions *[Invited]*

Silvia Caponi
(National Research Council of Italy, Perugia, Italy)



13:50-14:05 CT1: Micromechanical characterisation of 3D Bioprinted neural cell models using Brillouin spectroscopy. Maryam Alsadat Rad, Hadi Mahmodi, Irina Kabakova, Joanne L. Tipper. (University of Technology Sydney, Australia)

14:05-14:20 CT2: Mechanical mapping of mammalian follicle development using Brillouin microscopy. Chii Jou Chan, Carlo Bevilacqua, and Robert Prevedel. (European Molecular Biology Laboratory, Heidelberg, Germany)

14:20-14:35 CT3: Brillouin Imaging of the Plant Cell Wall. Theresa Schlamp, Paola Duiz Duarte, Carlo Bevilacqua, Yoselin Benitez-Alfonso, Robert Prevedel, Sebastian Wolf, Thomas Greb. (Heidelberg University, Germany)

14:35-15:00 “Round table” discussion / Q&A

15:00-15:30

BREAK

Wednesday 13th October (all times CET)

SESSION II: CORRELATIVE & COMPARATIVE TECHNIQUES

(Chairs Francesca Palombo & Robert Prevedel)

15:30-15:55

**IT3: Visualizing cellular forces
in intestinal organoids *[Invited]***

Xavier Trepas

(Institute for Bioengineering of Catalonia, Barcelona, Spain)



15:55-16:20

**IT4: Force-controlled micropipettes to study
mechanosensitive ion channels *[Invited]***

Massimo Vassalli

(University of Glasgow, United Kingdom)



16:20-16:35

**CT4: Parallel Brillouin spectroscopy and nanometric profilometry with a
disposable optical fibre probe. Salvatore La Cavera, Fernando Pérez-Cota,**

Richard J. Smith, Matt Clark. (University of Nottingham, United Kingdom)

16:35-16:50

**CT5: Chemo-mechanical investigation of human musculoskeletal tissues by
Brillouin and Raman-microspectroscopy. M. Alunni Cardinali, M. Govoni, D.**

Dallari, L. Vivarelli, C. Stagni, M. Rocchi, M. Tschon, S. Brogini, M. Fini, M. Mattarelli, S. Caponi, D. Fioretto, A. Morresi. (University of Perugia, Italy)

16:50-17:15

“Round table” discussion / Q&A

17:10-17:45

BREAK

Wednesday 13th October (all times CET)

SESSION III: NOVEL BIOLOGICAL APPLICATIONS & INTERPRETATION B (Chairs Kareem Elsayad & Daniele Fioretto)

17:45-18:10 IT5: Analysis of flow induced texturing in complex fluids by Brillouin Light Scattering [Invited]
Joerg Baller
(University of Luxembourg, Luxemburg)



18:10-18:35 IT6: Probing molecular crowding in compressed tissues with Brillouin light scattering [Invited]
Thomas Dehoux
(Universite Lyon, France)



18:35-18:50 CT6: Quantifying mechanical properties of phase separated FUS protein with Brillouin microscopy. Timon Beck, Raimund Schlußler, Lize-Marie van der Linden, Titus Franzmann, Mark Leaver, Simon Alberti, Jochen Guck. (Max Planck Institute for the Science of Light, Germany)

18:50-19:25 CT7: A Predictive Relationship between Young's Modulus and Brillouin Modulus for Living Cells. Pei-Jung Wu, Darryl Overby. (Imperial College London, United Kingdom)

19:25-19:50 "Round table" discussion / Q&A

END OF DAY

Thursday 14th October (all times CET)

SESSION IV: INSTRUMENT DEVELOPMENT & DATA ANALYSIS A (Chairs Robert Prevedel & Kareem Elsayad)

13:00-13:15 On VIPA Spectrometers. Light Machinery, [Company talk]

13:15-13:40 **IT7: Paradigm-Shifting Real-Time BioBrillouin Microscopy with Impulsive Stimulated Scattering** *[Invited]*
Juergen Czarske
(Technical University of Dresden, Germany)



13:40-14:05 **IT8: Spinwave Brillouin spectroscopy with frequency combs and broadband electrical detection** *[Invited]*
Felipe Ademir Aleman Hernandez
(University of Gothenburg, Sweden)



14:05-14:20 **CT8: 3D Time-resolved Brillouin scattering with sub-micron axial resolution.** Fernando Perez-Cota, Leonel Marques, Richard J. Smith and Matt Clark. (University of Nottingham, United Kingdom)

14:20-14:35 **CT9: Precise localization analysis for high-throughput stimulated Brillouin scattering spectroscopy.** Giulia Zanini, Giuliano Scarcelli. (University of Maryland, USA)

14:35-14:50 **CT10: Biomechanical imaging of live 3T3 cells by stimulated Brillouin scattering microscopy.** Roni Shaashoua, Tal Levy, Barak Rotblat, Alberto Bilenca. (Ben Gurion University, Israel)

14:50-15:10 “Round table” discussion / Q&A

15:10-15:30

BREAK

Thursday 14th October (all times CET)

SESSION V: INSTRUMENT DEVELOPMENT & DATA ANALYSIS B (Chairs Robert Prevedel & Kareem Elsayad)

15:40-15:55 BLS instrument Software. THATec [Company talk]

15:55-16:20

IT9: VIPA versus TFP – putting the record straight *[Invited]*

John Sandercock
(Table Stable Ltd., Switzerland)



16:20-16:45

IT10: The dream is still alive: noninvasive imaging of mechanical properties of living cells and tissues *[Invited]*

Vladislav Yakovlev
(Texas A&M University, US)



16:45-17:00 **CT11: Line-scan Brillouin microscopy for fast 3D mapping of breast tumor spheroids.** Jitao Zhang, Milos Nikolic, Giuliano Scarcelli. (Wayne State University, USA)

17:00-17:15 **CT12: Applying fast and low phototoxicity Brillouin microscopy to developmental biology.** Carlo Bevilacqua, Juan Manuel Gomez, Ulla-Maj Fiuza, Ling Wang, Sebastian Hambura, Maria Leptin, Alba Diz-Muñoz, Robert Prevedel. (European Molecular Biology Laboratory, Heidelberg, Germany)

17:15-17:35

“Round table” discussion / Q&A

17:35-18:00

BREAK

Thursday 14th October (all times CET)

SESSION VI: MEDICAL APPLICATIONS (Chairs: Stephen Malin & Francesca Palombo)

18:00-18:25

IT11: More than meets the eye: Brillouin microscopy in Ophthalmology *[Invited]*

Amira Madeleine Eltony
(Harvard University, USA)



18:25-18:50

IT12: On retinal mechanics *[Invited]*

Stephanie Moellmert
(Max Planck Institute for the Science of Light, Germany)



18:50-19:05 **CT13: Brillouin spectroscopy as a method for characterizing xenogenic collagen-containing tissues.** Valeriya A. Zykova, Nikolay V. Surovtsev, Irina Yu Zhuravleva. (Russian Academy of Sciences, Novosibirsk, Russia)

19:05-19:20 **CT14: Assessment of myocardial viscoelasticity with Brillouin spectroscopy in myocardial infarction and aortic stenosis models.** Daniel Sanderson, Rafael J. Jiménez-Riobóo, María Villalba-Orero, Nuria Gontán, Manuel Desco, Enrique Lara-Pezzi, Maria Victoria Gómez-Gaviro. (Instituto de Investigación Sanitaria Gregorio Marañón, Madrid, Spain)

19:20-19:35 **CT15: Impulsive stimulated Brillouin microscopy on the way for single cell diagnostics.** Fabian Rottmann, B. Krug, N. Koukourakis¹, J. W. Czarske. (Technical University of Dresden, Germany)

19:35-20:00

“Round table” discussion / Q&A

20:00-20:30 Announcements of Poster and Best ECI Talk Prize / Closing Statements

END OF MEETING