

Programme Overview



	Day 1 Wednesday 31 August	Day 2 Thursday 1 September
08:30 – 09:00		Registration (The Edge)
09:00 – 09:30		<i>Light-sheet live imaging and its application in biology – I</i>
09:30 – 10:00		
10:00 – 10:30	Registration (Firth Hall)	Elizabeth Hillman Jordi Andilla Karishma Chhabria Kristen Panfilio Jonathan Taylor
10:30 – 11:00		Coffee break, Posters, Exhibition
11:00 – 11:30		<i>Light-sheet engineering</i>
11:30 – 12:00		
12:00 – 12:30	Hands on Workshops 1 (Firth Hall)	Francesca Cella-Zanacchi Chen Qian Thai Truong Teng Zhao Ricardo Bango Da Cunha Correia
12:30 – 13:00	Lunch Break	Lunch break
13:00 – 13:30		Round Table Session 1 (12:30 – 13:00)
13:30 – 14:00		Posters, Exhibition
14:00 – 14:30	Hands on Workshops 2 (Firth Hall)	Round Table Session 2 (14:00 – 14:30)
14:30 – 15:00		<i>Image analysis and big data challenges in light-sheet imaging</i>
15:00 – 15:30		
15:30 – 16:00	Hands on Workshops 3 (Firth Hall)	Jason Swedlow Everardo Gonzalez Boguslaw Obara Yang Li Bjorn Eismann
16:00 – 16:30		Coffee break, Posters, Exhibition
16:30 – 17:00	Afternoon Tea	
17:00 – 17:30		Poster/Exhibition Session
17:30 – 18:00	Welcome (Firth Hall) Philippe Laissue	
18:00 – 18:30	Rory Power Laura Young Hari Shroff	Evening Meal (The Edge)
18:30 – 19:00		
19:00 – 19:30	Drinks reception and buffet at Firth Hall	
19:30 – 20:00	Coach to The Edge	
20:00 - onwards		

Programme Overview



Day 3
Friday 2 September

Day 4
Saturday 3 September

08:30 – 09:00	Registration (The Edge)	
09:00 – 09:30		
09:30 – 10:00	<i>Multi-user & open source solutions</i>	<i>Light-sheet live imaging and its application in biology – III</i>
10:00 – 10:30	Jim Swoger Rana Alghamdi Monika Pawlowska Johannes Girstmair Tania Mendonca	Francesco Pampaloni Philipp Struntz Ibolya Kepiro Rosalie Richards Edmundo Sánchez Guajardo
10:30 – 11:00	Coffee break, Posters, Exhibition	Final Discussion and Presentations
11:00 – 11:30		Coffee and Farewell
11:30 – 12:00	Commercial Session	Shuttle bus to train station
12:00 – 12:30	5 min techno bite plus 5 min expert user talk	Alfred Denny Museum Tour
12:30 – 13:00	Lunch break	
13:00 – 13:30	Round Table Session 3 (12:30 – 13:00)	
13:30 – 14:00	Posters, Exhibition	
14:00 – 14:30	Round Table Session 4 (14:00 – 14:30)	
14:30 – 15:00		
15:00 – 15:30	<i>Multimodal imaging and new developments</i>	
15:30 – 16:00	Willy Supatto Bjorn Tews Frederic Berndt Thorsten Wohland Andrea Bassi	
16:00 – 16:30	Coffee break, Posters, Exhibition	
16:30 – 17:00		
17:00 – 17:30	<i>Light-sheet live imaging and its application in biology – II</i>	
17:30 – 18:00	Alexis Maizel Gloria Slattum Charlotte Buckley Hiroki Ueda	
19:00 - onwards	Conference Dinner The City Hall Coach from The Edge at 7pm	

Daily Programme



Day 1 Wednesday 31 August

10:00 – 11:00 Registration for Workshops (Firth Hall)

11:00 – 12:30 Hands on Workshops Session 1
(Firth Hall)

12:30 – 13:30 Lunch Break

13:30 – 15:00 Hands on Workshops Session 2
(Firth Hall)

15:00 – 16:30 Hands on Workshops Session 3
(Firth Hall)

16:30 – 17:00 Afternoon Tea

Session Chair: Tanya Whitfield and Philippe Laissue

17:00 – 17:15 **Welcome (Firth Hall)**
Philippe Laissue, University of Essex, UK

17:15 – 17:45 **Invited Speaker**
Light Sheet Fluorescence Microscopy: Past, Present and Future
Rory Power, MPI-CBG, Dresden, Germany

17:45 – 18:15 **Invited Speaker**
SPIM at Durham: Functional imaging in the living zebra fish embryo
Laura Young, Durham University, UK

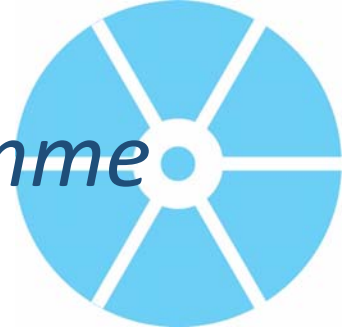
18:15 – 19:00 **Keynote Lecture**
Using Light Sheet Microscopy to Study Neurodevelopment
Hari Shroff, National Institutes of Health



Speaker sponsored by

19:00 – Late Drinks Reception and Buffet at Firth Hall
Coach to The Edge

Daily Programme



Day 2 Thursday 1 September

08:30 – 09:00

Registration (The Edge)

Session 1

Light-sheet live imaging and its application in biology - I Session Chair: Corinne Lorenzo

09:00 – 09:30

Invited Speaker
High-speed, *in-vivo* 3D imaging with SCAPE microscopy
Elizabeth Hillman, Columbia University, USA



Speaker sponsored by

09:30 – 09:45

Imaging tissue mimics with Light Sheet Microscopy: a comparative guideline
Jordi Andilla, ICFO, Barcelona, Spain

09:45 – 10:00

Combining lightsheet microscopy with novel zebrafish models to study neurovascular function
Karishma Chhabria, University of Sheffield, UK

10:00 – 10:15

How Light Sheet Live Imaging Elucidates Fast and Abrupt Developmental Events: A Case Study
Kristen Panfilio, University of Cologne, Germany

10:15 – 10:30

Multi-timescale heart imaging: from milliseconds to hours
Jonathan Taylor, University of Glasgow, UK

10:30 – 11:00

Coffee break, posters & exhibition

Session 2

Light-sheet engineering session Session Chair: John Girkin

11:00 – 11:30

Invited Speaker
Light sheet fluorescence microscopy as a platform for high resolution and super-resolution tissue imaging in the linear and non-linear regime
Francesca Cella-Zanacchi, Istituto Italiano di Tecnologia, Genoa, Italy

11:30 – 11:45

Gaussian waist scanning SPIM and its application in zebra fish development
Chen Qian, The Francis Crick Institute, London, UK

Daily Programme

- 11:45 – 12:00 Synchronous Volumetric Live Imaging with Light Field - Selective Volume Illumination Microscopy
Thai Truong, University of Southern California, USA
- 12:00 – 12:15 Multicolor 4D Fluorescence Microscopy using Ultrathin Bessel Light Sheets
Teng Zhao, Hong Kong University of Science and Technology
- 12:15 – 12:30 Characterisation of Bessel and Gaussian beam illumination modes on LSM imaging quality of early chick embryo development
Ricardo Bango Da Cunha Correia, University of Dundee, UK

12:30 – 14:30 Lunch break, Round Table Discussion, posters & exhibition

Lunch
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12:30 – 13:00 **Round Table 1**
Expert user discussion on current practical issues of LSFM

14:00 – 14:30 **Round Table 2**
How to assess phototoxicity

Session 3
Image analysis and big data challenges in light-sheet imaging
Session Chair: Emmanuel Reynaud

Session Sponsored by



14:30 – 15:00 **Invited Speaker**
OME's OMERO & Bio-Formats: Open Tools for Image Data and Metadata Access @Scale
Jason Swedlow, University of Dundee, UK

15:00 – 15:15 Registration of multiple views in LSFM by means of main axis projections
Everardo Gonzalez, University of Heidelberg, Germany

Daily Programme

15:15 – 15:30 Application of High-Speed Level Set Segmentation to Light Sheet Fluorescence Microscopy
Boguslaw Obara, Durham University, UK

15:30 – 15:45 Space-Variant Deconvolution for Fluorescence Microscopy Image Restoration and Reconstruction
Yang Li, Nanjing University, China

15:45 – 16:00 Automated High Content Screening of 3D Cell Models using Light Sheet Microscopy
Björn Eismann, DKFZ, Heidelberg, Germany

16:00 – 16:30 Coffee break, posters & exhibition

16:30 – 18:30 Poster/Exhibition Session

18:30 – 20:00 Evening Meal
(The Edge)

Dinner sponsored by



Continued on next page...

Daily Programme



Day 3
Friday 2 September

08:30 – 09:00

Registration (The Edge)

Session 4

Multi-user & open source solutions
Session Chair: Tom Vettenburg

09:00 – 09:30

Invited Speaker
OPTiSPIM for Mesoscopic Bio-Imaging
Jim Swoger, CRG, Barcelona

09:30 – 09:45

Assessing, Reducing and Reporting Phototoxicity in Lightsheet and Conventional
Fluorescence Microscopy
Rana Alghamdi, University of Essex, UK

09:45 – 10:00

A poor man's Light-Sheet Fluorescence microscope for whole-brain imaging
Monika Pawlowska, Nencki Institute, Warsaw, Poland

10:00 – 10:15

Analysing dynamics of spiral cleavage and the early cell lineage of the flatworm *Maritigrella*
crozieri by home-built SPIM microscopy
Johannes Girstmair, University College London, UK

10:15 – 10:30

3D Imaging of Sperm Storage Tubules in Female Birds
Tania Mendonca, University of Sheffield, UK

10:30 – 11:00

Coffee break, posters & exhibition

Daily Programme



Commercial Session Session Chair: Yan Gu

11:00 – 11:05 How using quality lasers and optical filters can enhance your light sheet microscopy results?
Karen McGeachy

LASER 2000

11:05 – 11:15 UltraMicroscope II - Technical improvements for better optical performance
Stephan Werk

LaVision **BioTec** 

11:15 – 11:20 High-speed imaging of larger objects with the Luxendo MuVi-SPIM
Malte Wachsmuth

X LUXENDO
the light-sheet company

11:20 – 11:30 A New Light Sheet Microscope with Synchronised High Speed Remote Focusing
Gaël Launay

PhaseView


PHOTON LINES

11:30 – 11:40 Innovations in ASI Light Sheet Microscopes - the Oblique SPIM
Gary Rondeau

ASI
APPLIED SCIENTIFIC
INSTRUMENTATION

11:40 – 11:50 Light Sheet Microscopy; Why the ORCA-Flash4.0 achieves the best images!
Ruediger Bader

HAMAMATSU
PHOTON IS OUR BUSINESS

11:50 – 12:00 Adapting sCMOS Cameras to the Needs of Light-Sheet Microscopy
Christelle Rosazza

ANDOR
an Oxford Instruments company

12:00 – 12:10 arivis strategies and application solutions for visualization and exploration of big images
Tamara Manuelian

 **arivis**

12:10 – 12:20 Imaris 8.3: The developmental Biologist's Best friend
Delisa Garcia

BITPLANE
an Oxford Instruments company

Daily Programme

13:00 – 14:00

Lunch break, Round Table Discussion, posters & exhibition

Lunch
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12:30 – 13:00

Round Table 3
Multi-user setup discussion on commercial systems

14:00 – 14:30

Round Table 4
Expert user discussion on future technical developments in LSMF

Session 5

Multimodal imaging and new developments Session Chair: Chris Dunsby

14:30 – 15:00

Invited Speaker
Light-sheet fluorescence microscopy using multiphoton excitation
Willy Supatto, CNRS, France

15:00 – 15:15

Correlated magnetic resonance imaging and ultramicroscopy (MR-UM) is a tool kit to assess the dynamics of glioma angiogenesis
Bjorn Tews, DKFZ, Heidelberg, Germany

15:15 – 15:30

Non-contact sample orientation in 3D for complete multi-view imaging
Frederic Berndt, MPI-CBG, Dresden, Germany

15:30 – 15:45

Wnt3 Palmitoylation is required for correct Membrane Localization in Live Zebrafish: A SPIM-FCS Study
Thorsten Wohland, National University of Singapore, Singapore

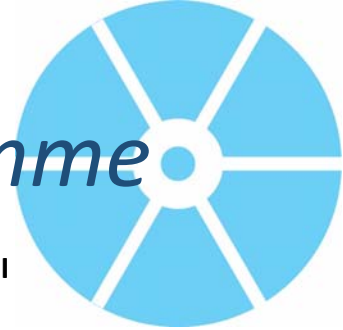
15:45 – 16:00

High throughput imaging of cellular spheroids with on-chip selective plane illumination microscopy
Andrea Bassi, Politecnico di Milano, Italy

16:00 – 16:30


Coffee break, posters & exhibition

Daily Programme



Session 6

Light-sheet live imaging and its application in biology – II Session Chair: Gopi Shah

16:30 – 17:00	<p>Invited Speaker</p> <p>Order from chaos: using light sheet microscopy to unravel the rules and self-organizing properties of division patterns in plants <i>Alexis Maizel, University of Heidelberg, Germany</i></p>	
17:00 – 17:15	<p>Oncogenic K-Ras^{V12} expression and basal extrusion induces cancer cell invasion <i>in vivo</i> <i>Gloria Slattum, MPI-CBG, Dresden, Germany</i></p>	
17:15 – 17:30	<p><i>in vivo</i> optical cell ablation in Zebrafish <i>Charlotte Buckley, University of Edinburgh, UK</i></p>	
17:30 – 18:00	<p>Invited Speaker</p> <p>Toward Organism-level Systems Biology in Mammals ~Whole-body and whole-organ clearing and imaging with single-cell resolution~ <i>Hiroki Ueda, University of Tokyo, RIKEN, Japan</i></p>	 <p>Speaker sponsored by</p>
19:00 – Late	<p>Coach from The Edge at 7pm to Conference Dinner at The City Hall</p>	

Dinner
sponsored by



Daily Programme



Day 4 Saturday 3 September

08:30 – 09:00

Registration (The Edge)

Session 7

Light-sheet live imaging and its application in biology – III

Session Chair: Raghuvveer Parthasarathy

09:00 – 09:30

Invited Speaker

Design, applications, and perspectives of the High-Throughput LSM
Francesco Pampaloni, Goethe University Frankfurt, Germany

09:30 – 09:45

Multiplexed measurement of protein diffusion in *Caenorhabditis elegans* embryos with
SPIM-FCS
Philipp Struntz, University of Bayreuth, Germany

09:45 – 10:00

Imaging challenges using light sheet microscopy in optically complex retinal tissues
Ibolya Kepiro, Istituto Italiano di Tecnologia, Genova, Italy

10:00 – 10:15

Imaging Cellular Invasion Using Multicellular Tumour Spheroids and Light Sheet
Microscopy
Rosalie Richards, University of Liverpool, UK

10:15 – 10:30

Light Sheet Microscopy to Study Chromatin Dynamics in *Arabidopsis* Under Stress
Edmundo Sánchez Guajardo, VBCF, Vienna, Austria

10:30 – 11:00

Final Discussion

11:00 – 11:30

Coffee, exhibition and farewell

11:30 – 12:00

Shuttle bus to train station

12:00 – 12:30

Alfred Denny Museum Tour