



## PROGRAMME

Monday, 5<sup>th</sup> October – ESRF Grenoble – Auditorium

10:00	<i>Welcome coffee and opening of registration</i>	
10:30 – 12:30	Beamline visit (meeting point entrance hall)	<b>Guided by the ID17 team</b>
12:30 – 13:30	<i>Lunch at the ESRF-ILL onsite restaurant</i>	
13:30	Registration continues	
14:00 – 14:15	Welcome by the Chairmen, Alberto Bravin and François Estève	
14:15 – 14:30	Welcome by Jean Susini, ESRF Director of Research	
<b>Special Presentations</b>		
14:30 – 15:15	Biomedical applications of nanoimaging	<b>P. Cloetens,</b> ESRF, France
15:15 – 16:00	Ultra-high dose-rate, FLASH irradiation increases the differential response between normal and tumor tissue and allows minimization of lung fibrosis in mice	<b>V. Favaudon,</b> Institut Curie- Recherche, Orsay, France,
16:00 – 16:15	<i>Tea &amp; coffee break</i>	
16:15 – 17:30	Mini-clips posters	
17:30 – 19:45	Wine & cheese event: onsite restaurant	
20:00	<i>Bus to Villard de Lans</i>	

8:15	<i>Registration at the Coupole</i>	
<b>Session 1, Chair person: P. Coan</b>		
08:45– 09:20	<b>Keynote Presentation:</b> Limits and strengths of today’s clinical radiology: where the research should focus on	<b>M. Reiser,</b> LMU, Germany
09:20– 09:40	Tomographic in-vivo study of lung physiology at the micrometer scale	<b>G. Lovric,</b> PSI, Switzerland
09:40 – 10:00	X-ray Specks – Ultra low dose in vivo imaging of lung structure and function	<b>M. Kitchen,</b> Monash Univ., Australia
10:00 – 10:30	<i>Coffee &amp; tea break – Official welcome by Villard de Lans’s town hall representative –</i>	
<b>Session 2, Chair person: R. Mokso</b>		
10:30 – 10:50	High-speed multi-modal x-ray imaging of airway surfaces for in vivo testing of treatment effectiveness	<b>K. Morgan,</b> Monash Univ., Australia
10:50 – 11:10	Investigating cystic fibrosis lung disease using synchrotron phase contrast imaging at CLS BMIT beamline	<b>X. Luan,</b> University of Saskatchewan, Canada
11:10 – 11:30	X-ray synchrotron interferometric measurement of eye lens media: evidence of a stepped gradient lens	<b>B. Pierscionek,</b> Kingston University, UK
11:30 – 11:55	<b>Facility Report:</b> Achievements and perspectives in medical applications at the PSI-TOMCAT beamline (Title to be confirmed)	<b>M. Stampanoni,</b> PSI and ETH, Switzerland
11:55 – 12:30	<b>Facility Report:</b> Biomedical phase-contrast imaging at MAX-IV	<b>M. Bech,</b> Lund University, Sweden
12:30 – 13:45	<i>Lunch at the Grand Hôtel De Paris</i>	

<b>Session 3, Chair person: D. Chapman</b>		
14:00 – 14:35	<b>Keynote Presentation:</b> Is relaxing the coherence requirements a necessary step to enable a clinical translation of X-ray phase contrast imaging?	<b>A. Olivo,</b> University College London, UK
14:35 – 14:55	3D imaging of Neuron System and Vascular Network in mouse spinal cord for the investigation of neurodegenerative diseases	<b>A. Cedola,</b> CNR-Institute of Nanotechnology, Italy
14:55 – 15:15	Diffusion-Convection Interaction as a cause of uneven gas distribution in rabbit lung	<b>S. Bayat,</b> Univ. de Picardie Jules Verne, France
15:15 – 15:35	Demonstrating the benefits of beta-blockers in hypertensive diabetic heart disease with synchrotron microangiography	<b>J. Pearson,</b> Monash Univ., Australia
15:35 – 16:00	<i>Coffee &amp; tea break</i>	
<b>Session 4, Chair person: E. Brun</b>		
16:00 – 16:20	Low dose phase-contrast breast tomography with synchrotron radiation at Elettra: first images	<b>R. Longo,</b> INFN Trieste, Italy
16:20 – 16:40	The application of Synchrotron free propagation phase contrast CT in preclinical asthma research	<b>C. Dullin,</b> University Medical Center Göttingen, Germany
16:40 – 17:00	3D quantification of microvascular regeneration after spinal cord injury in rat model by SR $\mu$ CT	<b>Y. Cao,</b> Xiangya Hospital, China
17:00 – 17:20	<i>Coffee &amp; tea break</i>	
<b>Session 5, Chair person: L. Porra</b>		
17:20 – 17:40	Spectral K-edge Subtraction Imaging of Bone-Seeking Elements	<b>A. Panahifar,</b> University of Saskatchewan, Canada
17:40 – 18:00	Synchrotron Radiation Computed Tomography with combined high spatial and temporal resolutions	<b>M. Ruat,</b> ESRF, France
18:00 – 18:20	Spatiotemporally resolved In vivo X-ray imaging studies of morphological dynamics, and of tissue and cell movements during biological processes	<b>R. Hofmann,</b> KIT, Germany
<b>18:30 -20:00</b>	<b><i>Poster Session at the Grand Hôtel de Paris</i></b>	
20:00	<i>Dinner at the Grand Hôtel de Paris</i>	

**Session 1, Chair person: R. Menk**

08:45– 09:20	<b>Keynote Presentation:</b> From nano particles to nanometric far-field interferometers - collaborations between beamlines and x-ray tubes	<b>H. Wen,</b> NHLBI, NIH, USA
09:20– 09:40	A single-image retrieval method for fast and low-dose applications of edge illumination X-ray phase-contrast imaging	<b>P. Diémoz,</b> UCL London, UK
09:40 – 10:00	Dark-field imaging dependence on energy and sample granularity: from synchrotron to X-ray tubes using a single photon-counting detector	<b>S. Gkoumas,</b> PSI, Switzerland
10:00 – 10:30	<i>Coffee &amp; tea break</i>	

**Session 2, Chair person: X. Jiang**

10:30 – 10:50	Cartilage and soft tissue imaging using X-rays - Propagation-based phase-contrast CT of the human knee in comparison to clinical imaging techniques and histology	<b>T. Geith,</b> Klinikum der Universität München, Germany
10:50 – 11:10	Multiple Energy Synchrotron Biomedical Imaging System	<b>B. Bassey,</b> University of Saskatchewan, Canada
11:10 – 11:30	Towards medical applications of grating interferometer at SLS	<b>Z. Wang,</b> PSI, Switzerland
11:30 – 11:50	X-ray dark-field imaging (XDFI) optics and its application to medicine	<b>M. Ando,</b> Tokyo Uni of Science, Japan
11:50 – 12:15	<b>Facility Report:</b> The Australian Synchrotron Imaging and Medical Beamline: Facility update	<b>D. Häusermann,</b> Australian Synchrotron, Australia
12:15 – 12:40	<b>Facility Report:</b> Biomedical imaging @ Elettra: the SYRMEP beamline	<b>G. Tromba,</b> Elettra, Italy
12:50 – 14:00	<i>Picnic Lunch</i> <b>Presentation by W. Thomlinson</b>	
14:00 – 16:45	Networking Activity / Social time: Hiking in Vercors with guides or Presentation of photographs of the Vercors by G. Le Duc at La Coupole	

**Session 3, Chair person: A. Stevenson**

17:00 – 17:20	Edge illumination dark-field imaging: applications with conventional X-ray sources, achromaticity and high energy implementations	<b>M. Endrizzi,</b> UCL London, UK
17:20 – 17:40	High-resolution subcellular imaging at the ESRF new nanoimaging beamline: deciphering intracellular targets of anticancer drugs in breast cancer cells	<b>F. Fus,</b> ESRF, France
17:40 – 18:00	Shedding light on the safety of ultrasound imaging/therapy using Analyzer Based X-ray Imaging	<b>Z. Izadifar,</b> University of Saskatchewan, Canada
18:00 – 18:20	Quantitative phase contrast computed tomography of large biomedical samples in the hard X-ray domain	<b>S. Gasilov,</b> KIT, Germany
18:20 – 18:40	Quantitative retrieval of absorption, refraction and scattering with Analyzer Based Imaging utilizing a novel three image algorithm	<b>F. Arfelli,</b> INFN, Italy
19:15	<i>Bus departure for the Conference Gala Dinner</i>	

<b>Session 1, Chair person: J. A. Laissue</b>		
08:30– 09:05	<b>Keynote Presentation:</b> Multiscale understanding and modelling of radiation biodamage	<b>A. Solov'yov,</b> MBN Research Center, Germany
09:05– 09:25	Dose thresholds for destroying hypoxic tumor and stromal cells with microbeam radiotherapy	<b>A. Jamshidi-Parsian,</b> Univ. of Arkansas for Medical Science, USA
09:25 – 09:45	The Munich Compact Light Source – The potential for x-ray microbeam irradiations at a compact synchrotron	<b>K. Burger,</b> TUM, Germany
09:45 – 10:05	Can computer modelling of the microvasculature help understanding the MRT tissue sparing?	<b>A. Merrem,</b> Institute of Cancer Research, Germany
10:05 – 10:30	<i>Coffee &amp; tea break</i>	
<b>Session 2, Chair person: E. Bräuer-Krisch</b>		
10:30 – 10:50	Synchrotron microbeam radiation - a new promising anti-angiogenic strategy for cancer treatment	<b>V. Djonov,</b> University of Bern, Switzerland
10:50 – 11:10	Radiotherapy by photoactivation of iron nanoparticles and Mössbauer effect	<b>P. Gimenez,</b> INSERM/ESRF, France
11:10 – 11:35	<b>Facility Report:</b> Achievements and perspectives in medical applications at the ESRF – ID17 beamline	<b>A. Bravin,</b> ESRF, France
11:35 – 12:00	<b>Facility Report:</b> Achievements and perspectives in medical applications at Shanghai synchrotron (Title to be confirmed)	<b>T. Xiao,</b> Shanghai Institute of Applied Physics, China
12:00 – 12:25	<b>Facility Report:</b> BMIT Facility at the Canadian Light Source, biomedical applications and future plans	<b>T. Wysokinski,</b> University of Saskatchewan, Canada
12:30 – 13:45	<i>Lunch at the Grand Hôtel De Paris</i>	

<b>Session 3, Chair person: C. Ceresa</b>		
14:00 – 14:35	<b>Keynote Presentation:</b> MRT – Solved problems and unmet challenges to establish a new paradigm in radiation therapy	<b>U. Oelfke,</b> Institute of Cancer Research, UK
14:35 – 14:55	Fluorescent Nuclear Track Detector technology – high resolution imaging tool for photon and charge particle dosimetry and spectroscopy	<b>M. Akselrod,</b> Oklahoma State University, USA
14:55 – 15:15	Characterisation of a synthetic diamond detector for experimental dosimetry in MRT	<b>J. Livingstone,</b> Australian Synchrotron, Australia
15:15 – 15:35	<i>In vivo</i> dosimetry for synchrotron stereotactic radiation therapy	<b>D. Reynard,</b> ESRF, France
15:35 – 16:00	<i>Coffee &amp; tea break</i>	
<b>Session 4, Chair person: F. Estève</b>		
16:00 – 16:35	<b>Keynote Presentation:</b> Synchrotron Radiation Therapy: ongoing development and long term prospect	<b>J. Balosso,</b> CHU Grenoble, France
16:35 – 16:55	Medical physics issues in contrast-enhanced synchrotron stereotactic radiotherapy clinical trials.	<b>J.F. Adam,</b> INSERM/ESRF, France
16:55 – 17:15	Multi-strip silicon sensor for beam array monitoring in Micro-beam Radiation Therapy	<b>N. Pacifico,</b> University of Bergen, Norway
17:15 – 17:35	<i>Coffee &amp; tea break</i>	
<b>Session 5, Chair person: S. Wiebe</b>		
17:35 – 17:55	The use of theranostic gadolinium-based nanoprobe to improve radiotherapy efficacy.	<b>G. Le Duc,</b> ESRF, France
17:55 – 18:15	The Eclipse™ treatment planning system for microbeam radiotherapy trials at the Australian Synchrotron	<b>J. Crosbie,</b> RMIT, Australia
18:15 – 18:35	Quantitative characterisation of the white/ pink X-ray beam at the Australian Synchrotron Imaging & Medical Beamline (IMBL)	<b>A. Stevenson,</b> CSIRO, Australia
18:35	Discussion	
19:30	<i>Dinner at the Grand Hôtel de Paris</i>	

<b>WG1</b>	Radiation Biology	Chair: C. Mothersill Vice Chairs: V. Djonov, J Hopewell
08:30– 08:50	Abscopal and bystander effects following exposure of rodent brains to synchrotron medical microbeam irradiation	<b>C. Mothersill</b> , McMaster University, Canada
08:50– 09:10	Synchrotron X-ray Pencil beam Irradiation as Boost after Whole Brain Irradiation	<b>E. Schültke</b> , Rostock University Medical Centre, Germany
<b>WG2</b>	Treatment of tumours using MRT and SSRT, including improved drug delivery	Chair: M. Grotzer Vice Chair: J.A. Laissue
09:10 – 09:30	Synchrotron microbeam radiotherapy evokes a different tumor immunomodulatory response to conventional radiotherapy	<b>J. Crosbie</b> , RMIT, Australia
09:30 – 09:50	The development of a proton-beam grid radiotherapy	<b>T. Henry</b> , Stockholm University, Sweden
09:50 – 10:10	Multifunctional gold nanoparticles for image-guided microbeam radiation therapy	<b>S. Roux</b> , Université de Franche- Comté, France
10:10 – 10:30	<i>Coffee &amp; tea break</i>	
10:30 – 10:50	The minipig experiment: a last major milestone prior clinical trials in MRT	<b>E. Bräuer-Krisch</b> , ESRF, France
10:50 – 11:10	MRT for pet animals: Normal organ tolerance for MRT of the rabbit nose and jaws	<b>J.A. Laissue</b> , University of Bern, Switzerland
<b>WG3</b>	Dosimetry and treatment planning for small fields and microbeams	Chair: E. Bräuer-Krisch Vice Chair: U. Oelfke
11:10 – 11:30	Online 3D measurement of SSRT beams	<b>Y. Arnoud</b> , UJF Grenoble France
11:30 – 11:50	The development of a clinical protocol for microbeam-grid radiation therapy	<b>A. Siegbahn</b> , Stockholm University, Sweden
11:50 – 12:10	Conformal imaged guided MRT for multiple port treatment and first results on 4D dose calculations in MRT including tissue motion	<b>M. Donzelli</b> , ESRF, France
12:20 – 13:30	<i>Lunch at the Grand Hôtel De Paris</i>	

WG4	Emerging applications of microbeams	Chair: A. Depaulis Vice Chair: M. Jacquet
13:30 – 14:00	Liquid-metal-jet X-ray tube technology	<b>T. Tuohimaa,</b> Excillum, Stockholm, Sweden
14:00 – 14:30	Potential of compact Compton sources in the medical field	<b>M. Jacquet,</b> CNRS Orsay, France
14:30 – 15:00	General Discussion	
<i>End of Work Group Meetings</i>		
15:00 – 16:00	Restricted to COST SYRA3 Management Committee (MC) Separate Agenda provided to MC members	

**16:30: Bus departure to Grenoble from Villard de Lans bus station**