

Workshop on Coherence at ESRF-EBS

ESRF, Grenoble, France

ESRF auditorium

FINAL PROGRAMME

Day 1 - Monday 9th September 2019

13:00 – 14:00 Registration in the ESRF Central Building entrance hall

14:00 – 14:40 Welcome/Introduction **B. Ruta / J. Susini**

14:40 – 16:00 **Session: Coherence: Fundamentals and EBS source**
Chair: **V. Favre-Nicolin**

14:40 – 15:20 Coherent X-rays – Fundamentals and applications **P. Thibault (U. Southampton, UK)**

15:20 – 16:00 Coherence properties of the EBS insertion device sources **G. Le Bec (ESRF, FR)**

16:00 – 16:30 Coffee break

16:30 – 18:20 **Session: X-ray ptychography**
Chair: **J. C. da Silva**

16:30 – 17:10 X-ray ptychography: A powerful tool for imaging **A. Diaz (PSI, CH)**

17:10 – 17:30 Ptychographic Imaging with Increasing brilliance:
Strategies and developments from I13-1, Diamond Light Source **D. Batey (DLS, UK)**

17:30 – 17:50 Lignin suppression in *Arabidopsis thaliana* mutant is unveiled by
X-ray ptychography **C.C. Polo (LNLS, Brazil)**

17:50 – 18:10 *In-situ* hard X-ray ptychography **A. Schropp (DESY, DE)**

19:00 – 20:30 Dinner at the EPN campus restaurant

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Day 2 - Tuesday 10th September 2019

09:00 – 10:20	Session: Coherent diffraction imaging (CDI) Chair: V. Chamard	
09:00 – 09:40	Gearing X-ray microscopy towards environmental challenges	D. W. Breiby (Norwegian U. Sci. Tech., NO)
09:40 – 10:00	Magnetic scattering with coherent X-ray beams: State of the art and perspectives	G. Beutier (SIMAP, FR)
10:00 – 10:20	X-ray nanodiffraction studies of PbS-nanocrystal superlattices	D. Lapkin (DESY, DE)
10:20 – 10:50	Coffee break	
10:50 – 12:10	Session: Bragg CDI / Bragg ptychography Chair: M. Burghammer	
10:50 – 11:30	Bragg ptychography: recent results and perspectives at fourth generation synchrotron sources	V. Chamard (I. Fresnel, FR)
11:30 – 11:50	What new things can we do with CDI at high coherence sources?	N. Phillips (U. of Oxford, UK)
11:50 – 12:10	Ptychographic topography in forward and Bragg direction for microscopic strain characterization	M. Verezhak (PSI, CH)
12:10 – 12:30	Plasticity at the nanoscale studied by <i>in-situ</i> nano-mechanical testing coupled with BCDI	T. Cornelius (CNRS Marseille, FR)
12:30 – 14:00	Lunch at the EPN campus restaurant	
14:00 – 15:40	Session: 3D ptychography Chair: P. Thibault	
14:00 – 14:40	Quantification and analysis of amorphous components in cements by synchrotron ptychographic X-ray tomography	M. A. G. Aranda (U. Malaga, ES)
14:40 – 15:00	Ultrafine eutectic Ti-based alloys for additive manufacturing	K. Bugelnig (DLR, DE)
15:00 – 15:20	3D morphological analysis of cement over the first 24 hours of hydration by holographic and near-field ptychographic-tomography	L. Valentini (U. di Padova, IT)
15:20 – 15:40	3D ptychography of 3 rd generation solar cells	J. W. Andreasen (DTU, DK)
15:40 – 16:10	Coffee break	
16:10 – 17:50	Session: X-ray phase contrast and holography Chair: P. Cloetens	
16:10 – 16:50	Full-field phase imaging in practice and the impact of improved coherence	R. Mokso (MAX IV, SE)
16:50 – 17:10	Iterative phase retrieval in the hard X-ray regime for absorbing multi-material objects	J. Hagemann (DESY, DE)
17:10 – 17:30	X-ray speckle-based phase-contrast imaging – State of the art and future	M.-C. Zdora (U. Southampton, UK)
17:30 – 17:50	Holographic X-ray nano-tomography to uncover neural circuits	A. Pacureanu (UCL, UK)
17:50 – 20:30	Poster session + Cocktail	

Workshop on Coherence at ESRF-EBS

Day 3 - Wednesday 11th September 2019

09:00 – 10:20	Session: Applied Bragg CDI Chair: S. Leake	
09:00 – 09:40	Bragg coherent diffractive imaging: an everyday microscopy tool?	F. Hofmann (U. Oxford, UK)
09:40 – 10:00	<i>Operando</i> Bragg CDI investigation of temperature hysteresis in CO oxidation on model gold catalysts	A. Passos (LNLS, BR)
10:00 – 10:20	<i>In situ</i> and <i>operando</i> structural evolution of single metallic nanoparticle model catalysts under ambient pressure reaction conditions	M.-I. Richard (CNRS Marseille, FR)
10:20 – 10:50	Coffee break	
10:50 – 12:30	Session: X-ray photon correlation spectroscopy (XPCS) Chair: B. Ruta	
10:50 – 11:30	X-ray photon correlation spectroscopy	G. Grübel (DESY, DE)
11:30 – 11:50	Complex dynamics of nanoparticles in highly concentrated entangled networks revealed by XPCS	M. Reiser (XFEL, DE)
11:50 – 12:10	Large beam X-ray photon correlation spectroscopy	F. Westermeier (DESY, DE)
12:10 – 12:30	Current progress and challenges in the imaging and control of Van der Waals high temperature superconducting heterostructures	N. Poccia (IFW Dresden, DE)
12:30 – 14:00	Lunch at the EPN campus restaurant	
14:00 – 15:40	Session: SAXS XPCS Chair: F. Zontone	
14:00 – 14:40	Temporal correlations in liquid water using X-rays: From seconds to femtoseconds	F. Perakis (U. Stockholm, SE)
14:40 – 15:00	Dynamics during an arrested protein phase separation studied by XPCS and outlook for protein-XPCS at ESRF/EBS	C. Gutt (U. Siegen, DE)
15:00 – 15:20	Heterogeneous and anisotropic dynamics during gel formation and aging of attractive colloidal suspensions	A. Jain (DESY, DE)
15:20 – 15:40	Role of higher-order spatial correlation during colloidal self-assembly	F. Lehmkuhler (DESY, DE)
15:40 – 16:10	Coffee break	
16:10 – 16:30	Strategies to push the time resolution of X-ray photon correlation spectroscopy experiments with pixel-array detectors beyond one microsecond	E. Dufresne (ANL, US)
16:30 – 17:10	Status ID01 / Status ID13	
17:10 – 18:10	Round table ID01 / ID13	
19:30 – 22:00	Workshop dinner	

Workshop on Coherence at ESRF-EBS

Day 4 - Thursday 12th September 2019

09:00 – 10:20	Session: WAXS XPCS Chair: Y. Chushkin	
09:00 – 09:40	New opportunities to unveil glass dynamics with X-ray photon correlation spectroscopy at ESRF-EBS	G. Baldi (U. Trento, IT)
09:40 – 10:00	X-ray refractive parabolic axicon for coherence-related techniques: Imaging, diffraction and scattering	D. Zverev (Immanuel Kant Baltic Federal U., RU)
10:00 – 10:20	Glassy and liquid metals, from microscopic to macroscopic dynamics	E. Pineda (U. Politècnica de Catalunya, ES)
10:20 – 10:50	Coffee break	
10:50 – 12:30	Session: Applied holotomography Chair: J. Villanova	
10:50 – 11:30	Holotomography for preclinical investigation in neurodegenerative diseases	A. Cedola (Nanotec-CNR, IT)
11:30 – 11:50	X-ray phase contrast zoom tomography as a tool to visualize human healthy and diabetic peripheral nerves	M. Bech (Lund U., DK)
11:50 – 12:10	Correlative bio-imaging at the GINIX: Scanning SAXS, holography, and optical fluorescence	M. Osterhoff (Georg-August U. Göttingen, DE)
12:10 – 12:30	Successes and challenges of synchrotron X-ray nano-tomography for the characterization of solid oxide cells materials	M. Hubert (CEA, FR)
12:30 – 14:00	Lunch at the EPN campus restaurant	
14:00 – 15:40	Session: 3D Coherent Imaging Chair: A. Pacureanu	
14:00 – 14:40	Coherent diffractive imaging of non-periodic self-assembled colloidal nanocrystals	C. Giannini (IC-CNR, IT)
14:40 – 15:00	Internal structure of shales by coherent X-ray diffraction imaging	B. Chattopadhyay (Norwegian U. Science & Technology, NO)
15:00 – 15:20	Structural characterization of TiO ₂ gig-lox sponges by coherent X-ray diffraction imaging	S. Sanzaro (CNR-IMM, IT)
15:20 – 15:40	3D analysis of bone ultra structure from magnified phase nano-CT	F. Peyrin (CREATIS, FR)
15:40 – 16:10	Coffee break	
16:10 – 16:30	Fast <i>in situ</i> 3D nano-imaging at the ESRF	J. Villanova (ESRF, FR)
16:30 – 17:10	Status ID10CS / Status ID16A	
17:10 – 18:10	Round table ID16A / ID10CS	
19:00 – 20:30	Dinner at EPN campus restaurant	

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Day 5 - Friday 13th September 2019

09:00 – 10:10	Session: Grazing incidence XPCS Chair: Y. Chushkin	
09:00 – 09:40	Future opportunities for XPCS of atomic-scale dynamics at interfaces	B. Stephenson (ANL, USA)
09:40 – 10:00	Liquid/liquid interface dynamics probed by grazing incidence XPCS	F. Amadei (U. Heidelberg, DE)
10:00 – 10:20	Grid-type distorted born approximation: A dynamic scattering model for coherent surface scattering imaging	M. Chu (ANL, US)
10:20 – 10:50	Coffee break	
	Session: EBSL1 project	
10:50 – 11:20	Project presentation	
11:20 – 12:20	Round table EBSL1	
12:20 – 12:30	Conclusions	
12:35 – 14:00	Lunch at the EPN campus restaurant	
14:00	End of workshop	