

# Workshop on Studies of Dynamically Compressed Matter with X-rays

Monday 16 and Tuesday 17 February 2015

Venue: ILL Chadwick Amphitheatre

## Monday 16 February 2015

13:00 - 13:45	<i>Registration &amp; Welcome Coffee</i>	
13:45 - 14:00	Welcome by <b>Harald Reichert</b> (ESRF, France)	
Session I (14:00 - 15:50): Bringing shock compression to synchrotron radiation facilities		
14:00 - 14:30	Dynamic experiments at the Advanced Photon Source	<b>Brian Jensen</b> (Los Alamos National Lab, USA)
14:30 - 14:50	Combining X-ray absorption spectroscopy and laser shock to probe warm dense iron at the ESRF	<b>Olivier Mathon</b> (ESRF, France)
14:50 - 15:10	X-ray studies of dynamically-compressed matter at large laser facility: need for complementary measurements at synchrotrons?	<b>Federica Coppari</b> (LLNL, USA)
15:10 - 15:30	Overview of dynamically compressed matter studies using laser-produced and free electron laser X-ray sources	<b>Alessandra Benuzzi</b> (LULI, France)
15:30 - 15:50	Dynamic ultra-bright X-ray laser scattering from warm dense materials at the LCLS	<b>Luke Fletcher</b> (SLAC, USA)
15:50 - 16:20	<i>Coffee</i>	
Session II (16:20 - 18:10): Bringing shock compression to synchrotron radiation facilities		
16:20 - 16:50	Study on materials under extreme conditions using high-power laser and XFEL-SACLA	<b>Norimasa Ozaki</b> (Osaka University, Japan)
16:50 - 17:10	Direct observation of phase transition dynamics in shock-compressed materials via single-shot time-resolved X-ray diffraction	<b>Kouhei Ichiyanagi</b> (KEK Photon Factory, Japan)
17:10 - 17:30	X-ray probing of dynamically loaded experiments at the Institute of Shock Physics	<b>Michael Rutherford and Simon Bland</b> (Imperial College London, UK)
17:30 - 17:50	Dynamical compression studies at CEA Gramat : ongoing experimental and numerical developments	<b>Frédéric Zucchini</b> (CEA, France)
17:50 - 18:10	Some experiments where X-rays might be used to probe shock-loaded materials	<b>Thibaut de Rességuier</b> (ENSMA, France)
20:00 - 22:30	<i>Workshop Dinner</i>	



## Tuesday 17 February 2015

### Session III (08:30 - 09:50): Going time-resolved: Filling the gap between static & dynamic compression

08:30 - 08:50	Doing time resolved synchrotron X-ray measurements at very high pressure: a strategy and first results	<b>Paul Loubeyre</b> (CEA, France)
08:50 - 09:10	XRD studies of dynamically compressed matter: from synchrotrons to XFELs	<b>Hanns-Peter Liermann</b> (DESY, Germany)
09:10 - 09:30	Crystallography: from static to dynamic compression	<b>Malcolm McMahon</b> (Univ. Edinburgh, UK)
09:30 - 09:50	Studies of matter under fast compression and decompression at HPCAT	<b>Guoyin Shen</b> (Carnegie Inst. of Washington, USA)
09:50 - 10:20	<i>Coffee</i>	

### Session IV (10:20 - 12:30) - Future areas of application at synchrotrons

10:20 - 10:50	Planetary physics and warm dense matter research	<b>Ronald Redmer</b> (University of Rostock, Germany)
10:50 - 11:10	Opportunities for investigating shock-induced chemistry at synchrotron facilities - From impacts to early life	<b>Dylan Spaulding</b> (Harvard University, USA)
11:10 - 11:30	Experimental study of planetary cores	<b>Guillaume Morard</b> (IMPMC, France)
11:30 - 12:30	<i>ROUND TABLE DISCUSSION</i>	<b>François Guyot</b> (IMPMC, France)
12:30 - 14:00	<i>Lunch</i>	

### Session V (14:00- 16:20) - Future areas of application at synchrotrons

14:00 - 14:20	Optical spectroscopy pump-probe experiments at high pressure; going more extreme- complementary measurements at synchrotrons?	<b>Roberto Bini</b> (Univ. Florence, Italy)
14:20 - 14:40	Material ejection under shock: need for time-resolved <i>in-situ</i> characterization	<b>Arnaud Sollier</b> (CEA, France)
14:40 - 15:00	Ab initio simulation of XANES spectra for warm dense matter	<b>Vanina Recoules</b> (CEA, France)
15:00 - 15:20	Time-resolved XANES experiments to investigate transition from solid to Warm Dense Matter	<b>Fabien Dorchies</b> (CELIA, France)
15:20 - 16:20	<i>COFFEE and ROUND TABLE DISCUSSION on future opportunities (XRI, XRD, XAS) at ESRF</i>	<b>Olivier Mathon, Mohamed Mezouar, Alexander Rack, Michael Wulff</b>
16:20 - 16:30	Conclusions and outlook by <b>Sakura Pascarelli</b> (ESRF, France)	

