EUCALL

The European Cluster of Advanced Laser Light Sources

Grant Agreement number: 654220

Work package 1 – Management

Deliverable D1.2

1st EUCALL Annual Meeting

Lead Beneficiary: European XFEL

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Deliverable Type	
R = Report DEM = Demonstrator, pilot, prototype, plan designs DEC = Websites, patents filing, press & media actions, videos, etc. OTHER = Software, technical diagram, etc.	OTHER
Dissemination Level	
PU = Public, fully open, e.g. web CO = Confidential, restricted under conditions set out in Model Grant Agreement CI = Classified, information as referred to in Commission Decision 2001/844/EC	PU

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EUCALL Annual Meeting 2016

31 August - 02 September 2016

Venue: Building 106, Room 255

Helmholtz Zentrum Dresden-Rossendorf, Bautzner Landstrasse 400, 01328 Dresden

In total, 75 participants attended the EUCALL Annual Meeting, and the Plenary Session containing presentations introducing EUCALL and its progress to date were attended by all. HZDR's director opened the meeting while Thomas Tschentscher, the EUCALL Project Director welcomed the participants with a coordinator report: EUCALL's progress during its first year. The Work Package Leaders (WPLs) of each Work Packages (WPs) 3-7 presented the progress to date of each WP (10min each).

The participants then divided into parallel sessions for their separate WPs which involved presentations and discussions about the current status of each of the members. Afterwards all of the participants were transported to the venue of the Meeting Networking Dinner.

On Thursday 01 September, the participants attended the second parallel WP sessions, to discuss further development of their defined EUCALL tasks and objectives. In place of the WP3 (Synergy) session, the participants held EUCALL's 2nd Face-to-Face Steering Committee meeting.

The participants were then able to choose between two cross-WP sessions, designed to provide experience exchange between the different scientific communities. One session highlighted the differences and commonalities between Synchrotron, Free-Electron Laser and High Power Laser facilities, while the other was a tutorial for programing using Field Programmable Gate Arrays and Graphical Processing Units (FPGA/GPU).

The participants were then divided into small groups for a tour of seven of HZDR's experimental facilities, and then reconvened for a poster session and light-dinner.

On Friday 02 September the participants divided again into parallel WP sessions and then reconvened for the final plenary session, which involved a summary presentation from each of the WPLs, describing what has been achieved over the past three days (10min each) and a final close-out from Thomas Tschentscher, who also announced the date of the EUCALL Annual Meeting 2017 (7-9 June at ESRF, Grenoble, France). After the official end of the meeting, a combined meeting of the Synergy Board and Executive Board was held.

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WP3 – Synergy of Advanced Light Sources:

Introductory session: The formation and terms of reference of the Synergy Board were reported, as well as the progress so far in WP3's data collection: "Instruments at RIs" and "Survey of Technology Transfer at RIs". Initial conclusions from each of these studies were shown, and it could be concluded that WP3's data collection has already identified possible ways in which the RIs of different types can benefit from this survey and analysis.

Summary session: It was reported that the WP members had suggested ways to improve the data collection methods, and that this collection will accelerate during the following months with the addition of a new full time employee for WP3 at ELI-DC. The WP members also agreed on the topics and rough timeline of WP3's "Workshops for Experience Exchange" which are planned for 2017 and 2018. WP3 finally discussed possible Joint Foresight Topics for EUCALL and preparations of future sustainable collaborations beyond the EUCALL project.

WP4 – Simulation of Experiments (SIMEX)

Introductory session: The WPL reminded the audience of the goals of SIMEX and the individual members of the WP. An overview of the different software modules being implemented and their current status was given, and the first scientific results were presented, for which a publication is currently under preparation. It was also shown that the first two deliverables are almost complete. Finally, the outlook for the next year was presented.

Summary session: The WP members have set up an open source software repository for use by all WPs. SIMEX involves contributions by all types of EUCALL's facilities and is now ready for science. The first four scientific applications, for which SIMEX will be used, have been defined. These involve science relevant to all types of EUCALL's light sources, namely: x-ray probing of laser-excited materials, and a laser-plasma based x-ray source. Possible synergies with WP7 have also been recognized. The WP members plan to continue face-to-face meetings, and regular TelCo meetings. They will reinforce the use of software development planning tools and will hold a specific workshop in 2017 which will involve exchange about the science applications plus programming on defined issues. It was emphasized that SIMEX is now ready for science and publications, and that the first publication is in preparation.

WP5 – Ultrafast Data Acquisition (UFDAC)

Introductory session: The WPL introduced the Milestone which was completed in May 2016 and what it implies in relation to the rest of the work in progress. It was emphasized that in their work, there are two sub-communities, (programing using either Field Programmable Gate Arrays (FPGA) or Graphical Processing Units (GPU), and the aim of the Day 2 session was to enable experience exchange between these two. A workshop with similar goals, but an extended scope and for external participants is planned to be held at European XFEL during 15-18 November 2017.

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Summary session: The WPL noted that there was not really enough time during the WP sessions for the large number of discussion points which arose, however in many cases solutions were also able to be developed. The WP members defined concepts for an information repository which will be set up, for all specifications, designs and software (combined with WP4). A format for the FPGA/GPU November 2017 workshop was developed, as well as a detailed list of the planned face-to-face meetings between the different WP members. It was mentioned that for the previous Milestone, a face-to-face meeting was very useful to realise their goals, differences and commonalties.

WP6 – High Repetition Rate Sample Delivery

Introductory session: The WPL reintroduced the objectives and tasks of the WP and described how different technologies from European XFEL, DESY and ELI Beamlines are being combined to produce WP6's defined deliverables. The current status of each of the WP Milestones and Deliverables were outlined, and WP6's involvement in organizing the Satellite Workshop "Building a Target Network for Advanced Laser Light Sources" was discussed (see Annex 1).

Summary session: The WPL mentioned that the WP sessions involved a lot of interesting discussion and it has been a very fruitful meeting. WP6 has several possible new external collaborators – these are related groups within PSI and within DESY, as well as with a UK group involved in Target Fabrication. These have arisen during presentation of HIREP's activities at external meetings and events. HIREP has set up an email address for users to send information about targets/samples to be supported for the HIREP target/sample delivery system. The WPL showed the role and tasks of each participant, relative to HIREP's Deliverables and Milestones for the next 24 months. The approach to the upcoming deliverable has been discussed in detail, and the next face-to-face meetings and upcoming video conferences are already planned.

WP7 – Pulse Characterisation and Control

Introductory session: The WPL reintroduced the three separate tasks of WP7 and summarized the current status of each task. Three face-to-face meetings and a workshop have already taken place in 2016 and set basis for joint activities have already been developed. The first deliverable (due 30 September 2016) is already complete and ideas for experimental campaigns for each prototype have already been proposed.

Summary session: It was reported that the discussions held during the last three days have been very fruitful. A prototype for the liquid jet pulse arrival sensor is ready, as well as the wavefront sensor. These are ready to be tested and optimized at a variety of light sources. For the x-ray intensity sensor, two different designs may be required due to the large range in photon energy and photon count. The WP members plan face-to-face meetings at several external scientific meetings, as well as their own private meetings in the rest of 2006 and during 2017.

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Summary

The EUCALL Annual Meeting 2016 was a highly successful meeting in which a great deal of progress in each of the WPs was demonstrated, and it was clear that EUCALL's activities to date have succeeded in bringing together scientists from accelerator- and laser-based light sources for collaborations which will benefit both communities. The participants have been able to complete all of their required deliverables and milestones to date, and showed at the Annual Meeting that they are well prepared for the coming challenges of EUCALL's second year. The Annual Meeting was also an important opportunity for the participants to learn more about the WPs in which they are not personally involved, as well as the cross-WP sessions in which they could learn more about the "other" communities. Several participants commented that future Annual Meetings should be longer, or at least provide even more time for WP sessions – this is an issue that could be addressed when planning the next EUCALL Annual Meeting.

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Annex 1: Satellite Workshop "Building a Target Network for Advanced Laser Light Sources"

On 29-31 August, a Satellite Workshop to the EUCALL Annual Meeting 2016 was held at HZDR, entitled "Building a Target Network for Advanced Laser Light Sources". This topic is of great importance to many advanced laser light sources, including a number of EUCALL's partner facilities, as the build-up of high-power laser sources with ever increasing pulse repetition rates will require fast and cheap access to a high volume of laser targets, for a variety of experiments and applications. When European XFEL and ELI begin full user operation in 2018 it will be particularly important to have these targets readily available.

The meeting was co-organised by WP6 of EUCALL. More than 60 participants attended, and the final result was that the photon-science and laser-science communities recognize that there is a need for the creation of a network for delivery of targets to laser systems, and further work is being done to realise this. It is likely that European XFEL, ELI, ESRF and HZDR will form the basis of such a future network.

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EUCALL Annual Meeting 2016
31 August - 02 September 2016

Venue: Building 106, Room 255
Helmholtz Zentrum Dresden-Rossendorf, Bautzner Landstrasse 400, 01328 Dresden

Wednesday 31 August 2016

Time	Programme
11:30	Bus transfer from hotel(s) to HZDR
12:30	Registration
13:00	*Welcome to HZDR* – R. Sauerbrey / HZDR
13:10	*Introduction* – T. Tschentscher / European XFEL
13:40	*Status of WP3 / SYNERGY* – C. Miron / ELI-DC
13:50	*Status of WP4 / SIMEX* – A. Mancuso / European XFEL
14:00	*Status of WP5 / UFDAC* – M. Bussmann / HZDR
14:10	*Status of WP6 / HIREP* – D. Margarone / ELI Beamlines
14:20	*Status of WP7 / PUCCA* – K. Tiedtke / DESY
14:30	Coffee Break
15:00	*Work package meetings: Part 1 - Overview of progress* *WP3 – SYNERGY* *WP4 – SIMEX* *WP5 – UFDAC* *WP6 – HIREP* *WP7 – PUCCA*
17:00	Bus transfer to Dresden centre (Old Town)
18:45	Networking Dinner / Cruise on river Elbe
22:00	Return to hotels

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Thursday 01 September 2016

Time	Programme
08:00	Bus transfer from hotel(s) to HZDR
09:00	*Work package meetings: Part 2 – Next steps, planning of workshops* *WP4 – SIMEX* *WP5 – UFDAC* *WP6 – HIREP* *WP7 – PUCCA*
09:00	Steering Committee meeting
11:00	Coffee Break
11:20	*Workshops/Experience Exchange Part 1:* *Differences and commonalities in High Power Laser / XFEL / Synchrotron experiments. – See Page 9*
11:20	*Workshops/Experience Exchange Part 1:* *Introduction to GPU Programming/FPGA programming. – See Page 10*
13:00	Lunch
14:00	*Workshops/Experience Exchange Part 2:* *Differences and commonalities in High Power Laser / XFEL / Synchrotron experiments. – See Page 9*
14:00	*Workshops/Experience Exchange Part 2:* *Introduction to GPU Programming/FPGA programming. – See Page 10*
15:45	Coffee Break
16:00	Site visit
18:30	Poster Session with buffet dinner
20:00	Bus transfer from HZDR to hotel(s)

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Differences and commonalities in High Power Laser / XFEL / Synchrotron experiments

01 September 2016

Venue: Building 106, Room 255
Helmholtz Zentrum Dresden-Rossendorf, Bautzner Landstrasse 400, 01328 Dresden

Thursday 01 September 2016

Time	Programme
11:20	***Synchrotron Radiation & Facilities*** **– S. Pascarelli / ESRF**
11:40	***Example of Synchrotron Experiment*** **– C. Bressler / European XFEL**
12:10	***FEL Radiation & Facilities*** **– J. Feldhaus / DESY**
12:30	***Example of FEL Experiment*** **– M. Zangrando / Elettra**
13:00	**Lunch**
14:00	***High Power Laser Radiation & Facilities*** **– G. Korn / ELI-Beamlines**
14:20	***Example of High Power Laser Experiment*** **– K. Ziel / HZDR**
14:50	***Highlight of a combination of capabilities - HIBEF*** **– T. Cowan / HZDR**
15:20	***Open discussion of commonalities and differences***
15:45	**Coffee Break and Site Visit**

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Introduction to GPU Programming / FPGA Programming

01 September 2016

Venue: Building 114, Second Floor
Helmholtz Zentrum Dresden-Rossendorf, Bautzner Landstrasse 400, 01328 Dresden

Thursday 01 September 2016

Time	Programme
11:20	Introduction (G. Juckeland, HZDR / A. Ahmed, European XFEL)
12:20	Hands on coding session part 1
13:00	Lunch
14:00	Introduction to the problem (G. Juckeland / A. Ahmed)
14:15	Hands on coding session part 2
14:45	Resumé of first two hands on sessions (all)
15:00	Hands on coding session part 3
15:30	Final resumé

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Friday 02 September 2016

Time	Programme
08:00	**Bus transfer from hotel(s) to HZDR**
09:00	***Work package meetings: Part 3 – Action items and discussion related to the cross-WP sessions*** ***WP3 – SYNERGY*** ***WP4 – SIMEX*** ***WP5 – UFDAC*** ***WP6 – HIREP*** ***WP7 – PUCCA***
11:00	**Summaries from work package meetings – WP leaders**
11:50	***Closing Remarks* – T. Tschentscher / European XFEL**
12:00	**End of Meeting / Bus transfer from HZDR to hotel(s)**

Only for EUCALL Executive Board and Synergy Board members:

Executive Board and Synergy Board Meeting
02 September 2016

Venue: Building 104, Room 201
Helmholtz Zentrum Dresden-Rossendorf, Bautzner Landstrasse 400, 01328 Dresden

Friday 02 September 2016

Time	Programme
12:00	**Synergy Lunch**
12:30	**Meeting of the EUCALL Executive Board and Synergy Board**
13:30	**End of Meeting / Bus transfer from HZDR to hotel(s) / train station**

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