



LASERLAB-EUROPE

The Integrated Initiative of European Laser Research Infrastructures IV

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WP4 – Scientific and Technological Exchanges

Deliverable 4.2

Final report on “Technical bridge workshops”

Lead Beneficiary: 4 – CNRS

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<i>Deliverable Type</i>	
R = Report DEM = Demonstrator, pilot, prototype, plan designs DEC = Websites, patents filing, press & media actions, videos, etc. OTHER = Software, technical diagram, etc.	R
<i>Dissemination Level</i>	
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

1 Objectives

The combined scientific and technical expertise of the project participants is a core asset of Laserlab-Europe, making it highly attractive for users and supporting a leading role of European science in photonics research. The objectives of Work Package 4 – “Scientific and Technological Exchanges” are i) to coordinate exchange on crucial scientific and technological issues of relevance for many partners, ii) to address the multidisciplinary applications of lasers and photonics technologies by bridging towards other ESFRI infrastructures and relevant networks, and iii) to pool know-how and good practice concerning essential operational issues such as security, laboratory management and data acquisition procedures.

The outcome of this scientific and technological networking will be increasingly unified efforts from all members of the Consortium, pushing forward laser science and technology in the European Community at large, as well as strong links with related networks and infrastructures such as ELI, Synchrotrons, Free-Electron Lasers (FELs) and life science networks. Two FELs have become members of Laserlab-Europe already and reinforce the collaboration and exchange with this community.

2 Task 1 – “Bridge” Workshops

The role of lasers and laser-like sources in modern science and technology is increasing steadily, creating new kinds of infrastructures and pan-European projects, such as ELI and XFEL. Laserlab-Europe promotes clustering and coordinated actions to initiate cross-fertilization with these new infrastructures, in order to avoid duplication of efforts and to strengthen cooperations. Under Task 1 of WP4, cross-disciplinary workshops are organised aiming at creating scientific and technical bridges with other communities, mainly in the framework of MoUs with ELI and FELs of Europe and in the collaboration in EUCALL, the H2020 cluster project “European Cluster of Advanced Laser Light sources”.

Lead partner: CNRS-CELIA

Science@FELs Conference, Stockholm, Sweden, 25-27 June 2018



The second “bridge” workshop was the international Science@FELs Conference, organised by the Department of Physics, Stockholm University together with SUFEL (Stockholm-Uppsala Centre for Free Electron Laser Research), the MAX IV Laboratory and the Lund Laser

Centre. Science@FELs is a biennial conference organised by FELs of EUROPE.

Laserlab Europe took part in the organisation of the 2018 conference with the aim to stimulate more extensive cross-fertilisation and collaboration between the two communities, i.e. those working with lab-scale lasers and FELs, respectively. The opening session of the conference included a presentation by the Laserlab-Europe Coordinator, about Laserlab-Europe and its access programme, and about additional opportunities for collaboration. In several of the following sessions, ‘Laser Physics’ talks were included, organised by Laserlab-Europe representatives, to demonstrate complementarities and to enhance synergies.

In collaboration with the European Cluster of Advanced Laser Light Sources (EUCALL), Young Researcher Travel Bursaries were awarded to young researchers to attend the conference. Emphasis was placed on enhancing participation of young researchers from the optical laser community.



In view of the increasing relevance of the collaboration of the optical laser community and the FEL community, the cooperation in organising conferences jointly will be continued, e.g. in the Science@FELs Conference 2020, Hamburg, Germany.

International School and Symposium on Synchrotron Radiation in Natural Science – ISSRNS 2019, Zakopane, Poland, June 9-14, 2019

The International School and Symposium on Synchrotron Radiation in Natural Science (ISSRNS) is organized every two years in Poland by the Polish Synchrotron Radiation Society. The aim of this interdisciplinary meeting is to bring together scientists and students working with synchrotron radiation. ISSRNS is a traditional forum for discussing fundamental issues of application of the synchrotron radiation and related methods in natural sciences. The meeting focusses on novel applications of synchrotron radiation in physics, chemistry, material and life sciences. The 2019 ISSRNS was organized with involvement of Laserlab-Europe through representatives who contributed as speakers to the different sessions.



Report on the bridge workshop co-organized by Laserlab-Europe

1. Event title

The 14th International School and Symposium on Synchrotron Radiation in Natural Science (SSRNS'2019)

2. Place and date of the event

Zakopane, Poland, June 9-14, 2019

3. Name and contact information of the organizer

Chairman of the conference: Prof. Maciej Kozak

Organizing institutions: Polish Synchrotron Radiation Society (www.synchrotron.org.pl) and Adam Mickiewicz University in Poznan, Poland (www.amu.edu.pl)

E-mail: mkozak@amu.edu.pl

Website: <http://issrns14.home.amu.edu.pl/>

4. Brief description of the event

Polish Synchrotron Radiation Society (PSRS) has been organizing the International School and Symposium on Synchrotron Radiation since 1991. The aim of this interdisciplinary scientific event is to bring together scientists and students working with synchrotron radiation. ISSRNS is a traditional forum for discussing fundamental issues of application of the synchrotron radiation and related methods in natural sciences.

The 14th International School and Symposium on Synchrotron Radiation in Natural Science (ISSRNS'2019) was organized in hotel "Belvedere" in Zakopane, Poland on 9-14 June 2019. The scientific programme of the event was focused on novel applications of synchrotron radiation in physics, chemistry, material and life sciences. Additionally, topics on development and application of laser-based sources of radiation have been included to the ISSRNS'19 programme as a bridge-workshop organized in collaboration with Laserlab-Europe.

5. Scientific program and time schedule of the event

The programme of the Symposium consisted of 30 invited lectures (40 minutes), 32 oral communications (20 minutes) and 20 poster presentations. The program is available on www.synchrotron.org.pl/archive/issrns14.home.amu.edu.pl/ISSRNS_2019_programme_1.pdf.

The abstracts of all presentations were published in the Bulletin of the Polish Synchrotron Radiation Society Volume 18, Number 1-2, June 2019 (available on the PSRS web page).

Representatives of the Laserlab-Europe consortium presented three invited lectures introducing laser-based of radiation to the synchrotron community, namely:

Dino Jaroszynski (SCAPA, University of Strathclyde, Glasgow, UK)

The laser plasma wakefield accelerator as a versatile radiation source for applications.

Per Johnsson (LLC, Lund University, Lund, Sweden)

Laser-Driven High-Order Harmonic Generation Sources - Technical Frontiers and Future Directions

Britta Redlich (FELIX, Radboud University, Nijmegen, The Netherlands)

IR and THz spectroscopy with the FELIX free electron laser: From astrochemistry to condensed matter physics.

Additionally three oral communications on new nanoimaging and spectroscopy techniques developed by the Laserlab-Europe members were also presented:

S. Skruszewicz, S. Fuchs, M. Wünsche, J. Nathanael, J. J. Abel, J. Reinhard, F. Wiesner, C. Rödel, G.G. Paulus

(Institute of Optics and Quantum Electronics, Friedrich Schiller University Jena, Germany and Helmholtz Institut Jena, Jena, Germany)

XUV coherence tomography with nanoscale resolution driven by broadband XUV sources

H. Fiedorowicz, P. Wachulak, T. Fok, A. Bartnik, K. Janulewicz

(Institute of Optoelectronics, Military University of Technology, Warsaw, Poland)

X-ray absorption spectroscopy using laser plasma soft X-ray sources

K.A. Janulewicz, A. Bartnik, P. Wachulak, H. Fiedorowicz

(Institute of Optoelectronics, Military University of Technology, Warsaw, Poland)

Nanometer resolution optical coherence tomography (OCT) using a compact laser plasma soft X-ray source

6. Presentation of the Laserlab project during the event

The Laserlab-Europe roll-up posters and information leaflets have been presented in the lecture hall and in the lobby.

Photos showing the Laserlab-Europe representatives and their presentations are enclosed.



The Laserlab-Europe representatives.



The lecture on laser-driven sources of radiation based on laser plasma wakefield presented by Dino Jaroszyński



The lecture on laser-driven sources of radiation based on high-order harmonic generation presented by Per Johnsson



The lecture on IR and THz spectroscopy studies using FELIX free electron laser presented by Britta Redlich