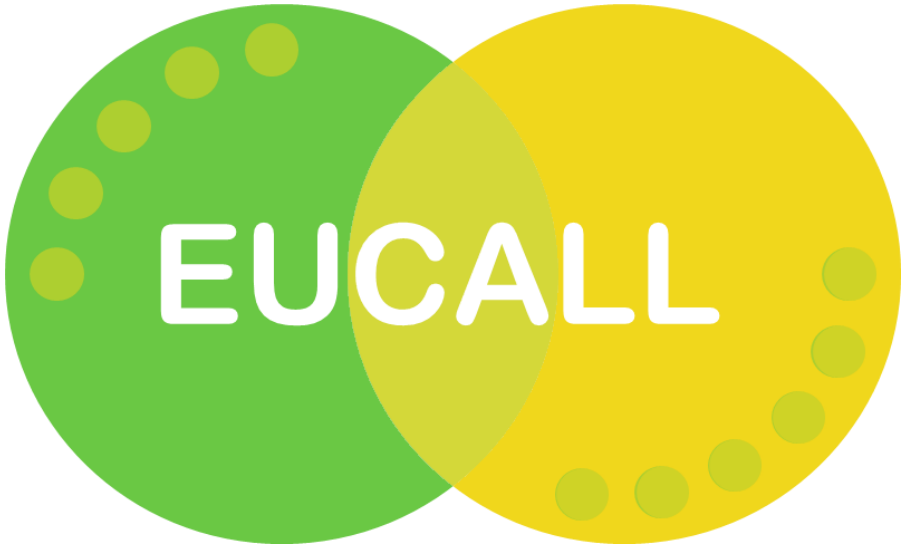

2nd EUCALL Target Network Workshop

29-30 May 2018, ELIBeamlines

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 654220

Consideration of a Target Network for Advanced Laser Light Sources

Workshop

29-31 August 2016
Helmholtz-Zentrum Dresden-Rossendorf

Organizing Committee
M Cernaianu, T Cowan, G Fiquet, Z Konopkova, D Margarone, S Pascarelli, I Prencipe, M Tolley

i.prencipe@hzdr.de

Credits Anna Ferrari

Upcoming European Advanced Laser Facilities

eli beamlines

2 X 1 PW
15 fs / 30 fs
15 J / 30 J
λ= nm
10 Hz

10 PW
150 fs – 1.5 ns
150 J – 1.5 kJ
λ= nm
1 shot/min

eli Nuclear Physics

2 x 1 PW
25 fs
30 J
λ=800 nm
0.1 Hz

2 x 10 PW
15-30 fs
200 J
λ=800 nm
1 shot/min

eli attosecond

ALPS-HF
17 fs
34 J
λ=700-900 nm
10 Hz

European XFEL

HED Instrument / HIBEF UC

- DiPOLE

2-20 ns, 100 J, λ=500 nm, 1-10 Hz

- 100 TW-class CPA Ti:Sapphire

30-50 fs, 3-5 J, λ=500 nm, 10 Hz

ESRF

ID 24
4-10 ns, 100-200 J
λ=1064 nm, 1 shot/min

CileX Apollon

10 PW 15 fs,
150 J, 1 shot/min

DRESDEN concept HZDR

Challenge: how do we deal with target supply and HRR issues?

HZDR

HELMHOLTZ ZENTRUM DRESDEN ROSSENDORF

EUCALL SATELLITE WORKSHOP
Dresden, August 29-31, 2016
90 participants

EUCALL

I. Prencipe, M. Cernaianu, T. Cowan, G. Fiquet, Z. Konopkova, P. Lutoslawski, D. Margarone, S. Pascarelli, M. Tolley

ASSESSMENT of the CURRENT STATUS

DISCUSSION of a COORDINATED STRATEGY

DRESDEN concept

HZDR

Challenge: how do we deal with target supply and HRR issues?

HZDR

HELMHOLTZ ZENTRUM DRESDEN ROSSENDORF

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First consequence of the workshop

Network for TARGET SUPPLY and HRR ISSUES identified as FORESIGHT ACTIVITY by the European Cluster of Advanced Laser Light Sources

DRESDEN concept

HZDR

Assessing target needs and target-related issues

Working Groups:

Shock-compression phyisics

Panel leader: Sakura Pascarelli

Electron transport and isochoric heating

Panel leader: Richard Stephens

Laser-driven particle and radiation sources

Panel leader: Julien Fuchs

High repetition rate challenges

Panel leader: Douglass Schumacher

Assessing target needs and target-related issues

Summary Document:

High Power Laser Science and Engineering, (2017), Vol. 5, e17, 31 pages.

doi:10.1017/hpl.2017.18

Targets for high repetition rate laser facilities: needs, challenges and perspectives

I. Prencipe[1], J. Fuchs[2], S. Pascarelli[3], D. W. Schumacher[4], R. B. Stephens[5], N. B. Alexander[6], R. Briggs[3], M. Büscher[7,8], M. O. Cernaianu[9], A. Choukourov[10,11], M. De Marco[10], A. Erbe[12,13], J. Fassbender[12,13], G. Fiquet[14], P. Fitzsimmons[6], C. Gheorghiu[9], J. Hund[15], L. G. Huang[1], M. Harmand[14], N. J. Hartley[1], A. Irman[1], T. Kluge[1], Z. Konopkova[16], S. Kraft[1], D. Kraus[1], V. Leca[9], D. Margarone[10], J. Metzkes[1], K. Nagai[17], W. Nazarov[26], P. Lutoslawski[10], D. Papp[18], M. Passoni[19,20], A. Pelka[1], J. P. Perin[21], J. Schulz[16], M. Smid[10], C. Spindloe[22,23], S. Steinke[24], R. Torchio[3], C. Vass[18], T. Wiste[10], R. Zaffino[25], K. Zeil[1], T. Tschentscher[16], U. Schramm[1,13], and T. E. Cowan[1,13]

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Assessing target needs and target-related issues

High Power Laser Science & Engineering, Editor-in-Chief Choice Award 2017
(awarded at HPLSE 2018, Suzhou, 9-13 April 2018)

Assessing target needs and target-related issues

High Power Laser Science & Engineering, Editor-in-Chief Choice Award 2017
(awarded at HPLSE 2018, Suzhou, 9-13 April 2018)

SCOPE: 2nd EUCALL Target Network Workshop

- Focus on assessment of immediate technical challenges which address common needs and could benefit from collaborative network among community members (initially self-funded Joint Research Activities, JRA's)
  - Debris mitigation, back reflection protection
    - reduce operations costs of "consumable optics"
  - EMP protection
    - sensitive x-ray detectors (XFEL, ESRF), stages/controllers
  - Target environment
    - fratricide, diagnostics, complex geometries
- Use JRA's as a mechanism to establish ourselves as a "new community" for potential future EU funding

Thank you

Acknowledgements

ORGANIZING COMMITTEE

M. Cernaianu, T. Cowan, G. Fiquet, Z. Konopkova, P. Lutoslawski, D. Margarone, S. Pascarelli, M. Tolley

PANEL LEADERS

J. Fuchs, S. Pascarelli, D. Schumacher, R. Stephens, T. Tschentscher

HZDR

B. Schramm, J. Fassbender, U. Schramm, J von Borany, J. Grenzer, A. Erbe, B. Gross

EUCALL WP 6

D. Margarone, J. Schultz, R. Appio, M. Cernaianu, C. Deiter, J. Dreyer, M. Gugiu, A. Meents, A. Pelka, T. Ursby, T. Wiste

Upcoming Advanced Laser Facilities

Emerging demands for high repetition-rate target delivery

European XFEL

HIBEF UC

ESRF

HPLF

eli beamlines

eli Nuclear Physics

eli attosecond

efficient use of HIGH POWER LASERS at MAJOR X-RAY USER FACILITIES

realization of the promise of the EXTREME LIGHT INFRASTRUCTURE

CilexApollon

access to national and international LASER FACILITIES

DRESDEN concept

HZDR