



Welcome!

EuPRAXIA Camp II - Science

Carsten P Welsch

INFN-LNF and U Liverpool/CI



UK Research
and Innovation

EuPRAXIA-DN Camp II: Science

14th-15th July, Lisbon, Portugal



Meeting Venue

Anfiteatro Abreu Faro
Instituto Superior Técnico (IST)
Av. Rovisco Pais 1
11049-001 Lisbon
Portugal

[Entrance to the site](#)



Overview of Activities

Sunday 13th July, IST (Anfiteatro Abreu Faro)

Welcome Reception from **18:00**

Monday 14th July, IST (Anfiteatro Abreu Faro, Cantinho do Avillez)

Registration from **8:30**

Camp Start **9:00**

Dinner at Cantinho do Avillez **19:00**

Tuesday 15th July, IST (Anfiteatro Abreu Faro)

Camp Start **9:00**

Camp ends **16:20**

Please see [Indico](#) for the full agenda.

EuPRAXIA-DN Camp II: Science

14th-15th July, Lisbon, Portugal

WIFI @ IST

- A temporary guest network will be available, accessible through the tecnico-guest network.
- The account name is EuPRAXIA Camp II
- The password is: A7jZn3

Dinner

Monday 14th July, from 19:00

[Cantinho do Avillez](#)

Rua dos Duques
de Bragança,
7 1200-162,
Lisbon



The restaurant is located [here](#). Please use Google Maps to research appropriate walking/public transportation routes.



Overview

EuPRAXIA Doctoral Network

Carsten P Welsch

INFN-LNF and U Liverpool/CI



UK Research
and Innovation

A bit of history...



(Beam Diagnostics, Physics)

4.2 M€, 22 Fellows, 32 partners



(Laser Applications, Engineering)

4.6 M€, 22 Fellows, 38 partners



(Accelerator Optimization, Physics)

6 M€, 23 Fellows, 35 partners



(Medical Applications, Life Sciences)

3.9 M€, 15 Fellows, 31 partners



(Antimatter R&D, Physics)

4.0 M€, 15 Fellows, 24 partners



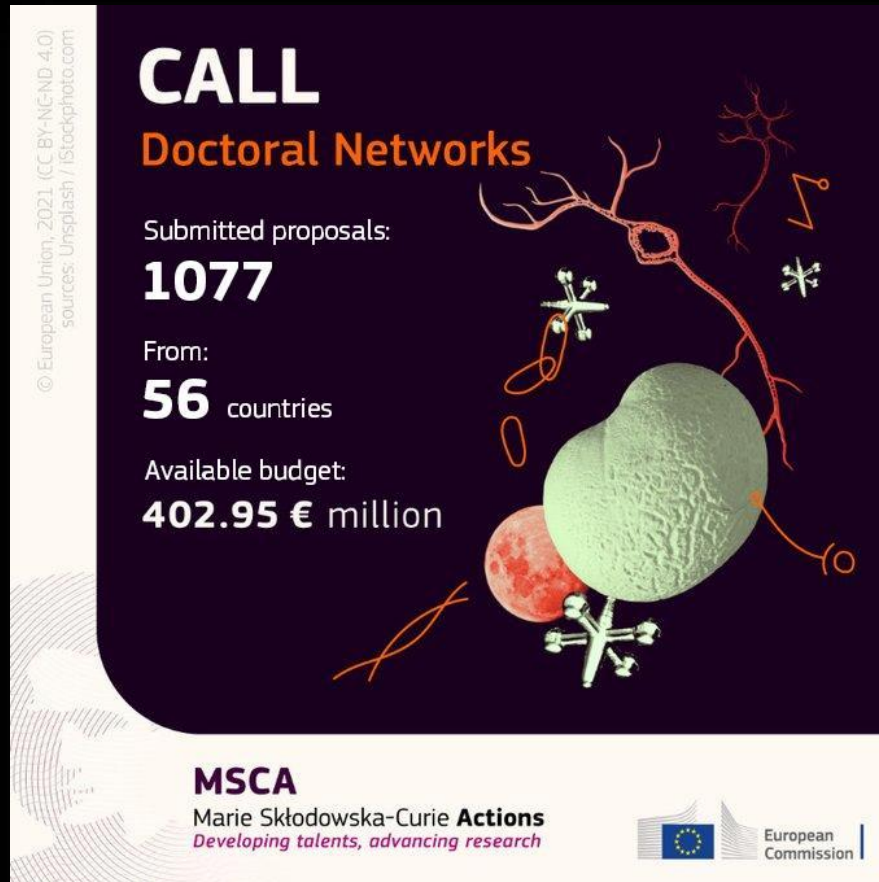
(Plasma Accelerator R&D, Physics)

3.2 M€, 12 Fellows, 23 partners



Largest portfolio of MSCA networks in any scientific area; around 25M€ of funding and more than 100 Fellows!
Also: Chair of STFC ETCC, member of UKRI TSAG and Director of two CDTs.

The 2021 MSCA-DN Call



CALL
Doctoral Networks

Submitted proposals:
1077

From:
56 countries

Available budget:
402.95 € million

MSCA
Marie Skłodowska-Curie **Actions**
Developing talents, advancing research

European Commission

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sources: Unsplash / iStockphoto.com

The poster features a dark purple background with a stylized illustration of a neuron in red and orange, a green textured sphere, and a red sphere. The text is in white and orange. The MSCA logo and European Commission logo are at the bottom.

- 897 proposals for standard doctoral networks
- In PHY: 83 proposals – only 10 networks were selected! Success rate was only 12 %.
- Complicated start...but we got there! (Brexit, visa issues,...)
- With 3.2M€ EuPRAXIA-DN is one of the largest networks, training 12 Fellows.

What is EuPRAXIA-DN?

- 12 high-level Fellowships (*10 Fellows are funded by the EU, another two by the UKRI Guarantee Funds*);
- Interdisciplinary and cross-sector plasma accelerator research and training program carried out between universities, research centres and industry;
- Organizes a (large) number of international events for the wider community;

Recognized importance of plasma accelerator R&D at European level!

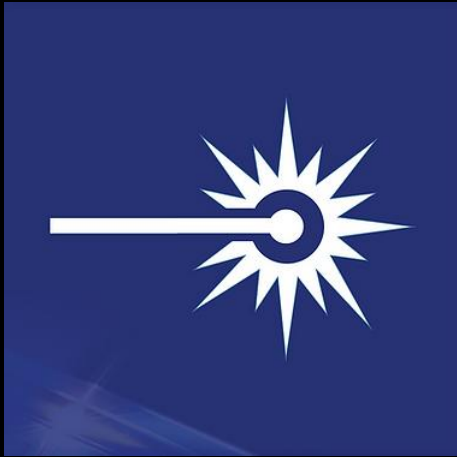
Beneficiaries



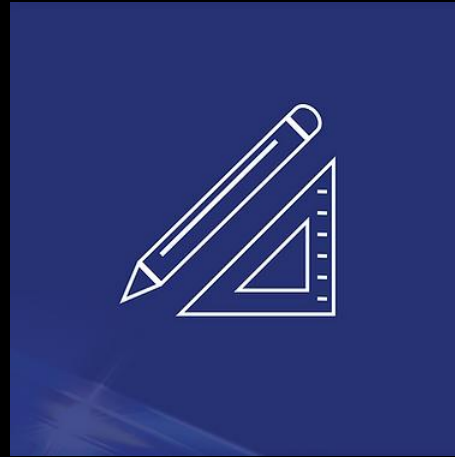
Partner Organizations



Research



Laser & Plasma



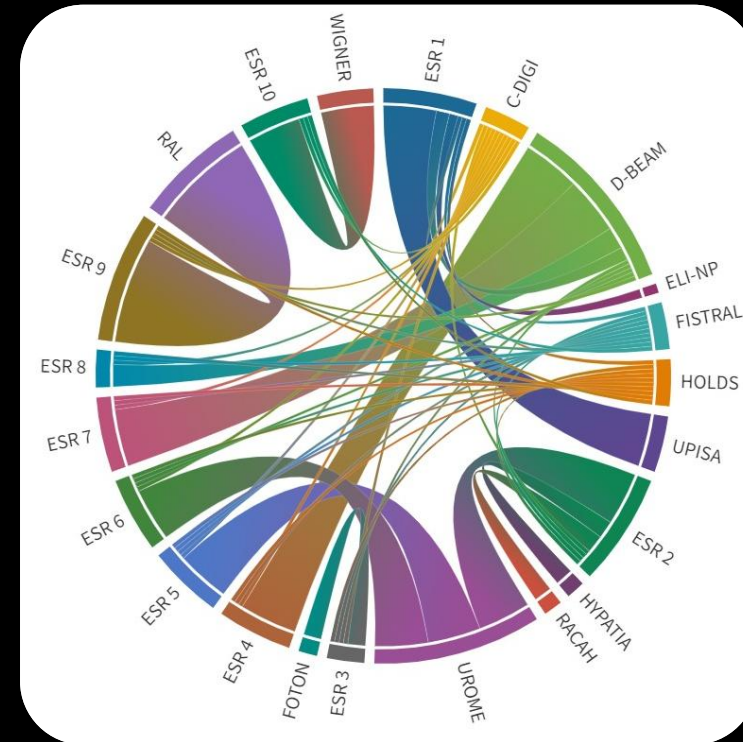
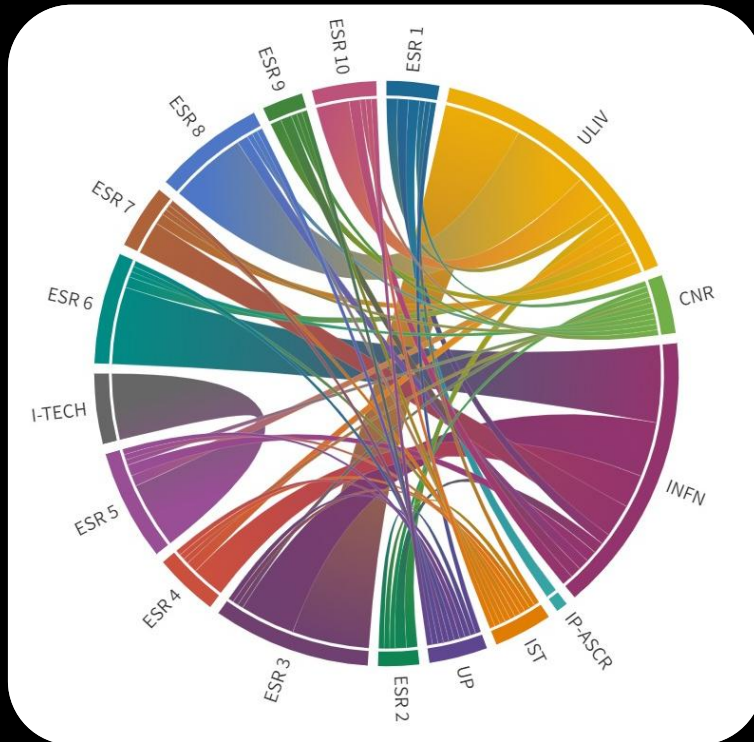
Facility Design &
Optimization



Applications

The network's main scientific and technological objectives are split into three closely interlinked work packages.

Secondments



Training & Events



- International **School** on plasma accelerators;
- EuPRAXIA **Camps** on focused research topics – always across the different project work packages.
- Researcher **skills trainings** designed to prepare all Fellows for their future careers and make them attractive for employers in academia and industry;
- Final **conference** and **outreach symposium** to present project results.

Events are open to all Fellows and wider community!

Kick-off Meeting

<https://indico.cern.ch/event/1200106/>



Prof Carsten P Welsch, EuPRAXIA Camp II – Science. Lisbon, Portugal – 14/15 July 2025

EuPRAXIA-DN Leaflet



Collaboration

The network's main scientific and technological objectives are split into three closely interlinked work packages

- Laser and Plasma,
- Facility Design and Optimization,
- Applications.

EuPRAXIA-DN brings together teams with world-class expertise in an interdisciplinary area of research. To achieve our research objectives, the network requires methods and skills from physics, engineering, optics, IT, materials sciences, electronics and advanced sensor technologies.

Beneficiary Partners



Associated Partners



Project Management

The Steering Committee is responsible for the overall network strategy and takes all the decisions concerning the network. It comprises the scientific coordinator, representative members from universities, research centers and industry, as well as one elected Fellow representative.

The representatives from academia and industry will also act as training coordinators, overseeing the training of all Fellows.

Contact us

EuPRAXIA-DN Coordinator
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(INFN-LNF / University of Liverpool)
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**ACCELERATING
RESEARCH
AND TRAINING**



About EuPRAXIA

EuPRAXIA is the first European project that develops a dedicated particle accelerator research infrastructure based on novel plasma acceleration concepts and laser technology. It focuses on the development of electron accelerators and underlying technologies, their user communities, and the exploitation of existing accelerator infrastructures in Europe. It was accepted onto the ESFRI roadmap for strategically important research infrastructures in June 2021 as a European priority.

Doctoral Network

To fully exploit the potential of this breakthrough facility, advances are urgently required in plasma and laser R&D, studies into facility design and optimization, along a coordinated push for novel applications.

The EuPRAXIA Doctoral Network (EuPRAXIA-DN) is a new Horizon Europe Marie Skłodowska-Curie Actions Doctoral Network (MSCA-DN), offering 12 high level fellowships between universities, research centers and industry that will carry out an interdisciplinary and cross-sector plasma accelerator research and training program for this new research infrastructure

The network focuses on scientific and technical innovations and on boosting the career prospects of its Fellows.

**“ Plasma accelerator research is
at the cutting edge of technology. ”**

Prof Dr Carsten P Welsch

Research Projects

The Fellows will work on the following research projects. Ten Fellows will be funded from the HE-MSCA-DN funds, while two Fellows will be funded by the UKRI guarantee funds:

Istituto Nazionale di Fisica Nucleare
Theoretical and Experimental Studies of Plasma Formation in Capillary Discharge Waveguides for Plasma-based Accelerators

Theoretical and Technological Studies into Femtosecond Synchronization

CVIDEC Instrumentation GmbH
Development of Integrated Diagnostics for Plasma Accelerators

Consiglio Nazionale delle Ricerche – Istituto Nazionale di Ottica
Manipulation and Characterization of Ultrashort Laser Pulses for High-quality Electron Bunch Acceleration

ELI Beamlines
Study laser-plasma interaction in a preformed plasma channel in a high repetition rate regime
Laser-driven Undulator Coherent Radiation Source

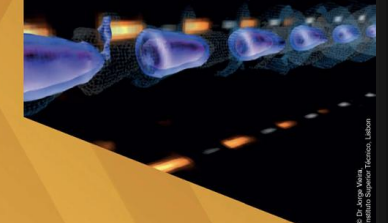
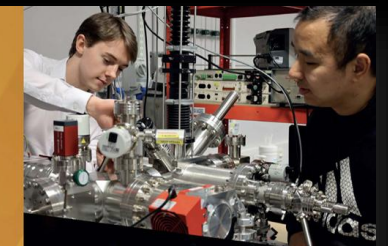
Istituto Superior Técnico
Superradiance from non-linear Thomson Scattering

Instrumentation Technologies
Development and Validation of an X-band Low Level Radio Frequency prototype for EuPRAXIA

Lunds Universitet
Short-pulse Laser-driven Injector

University of Pécs
THz-driven Dielectric Accelerators

University of Liverpool
Ultra-short Bunch Length Measurements with Femtosecond Resolution
Laser-driven Proton Beam Therapy



Training & Events

The fundamental core of the training is a dedicated cutting-edge research project for each Fellow at their host institution.

The training program is designed to address a wide range of employment skills with the aim to provide all Fellows with the competences required for their future researcher careers in both academia and industry. All students will be enrolled into a structured PhD program and benefit from a combination of local and network-wide trainings within EuPRAXIA-DN. This includes courses at the different host institutions, alongside network-wide trainings which will be made available to the wider scientific community.

English

French

Italian

German

Prof Carsten P Welsch, EuPRAXIA Camp II – Science. Lisbon, Portugal – 14/15 July 2025

EuPRAXIA-DN Brochure

Plasma Accelerators

Tens of thousands of particle accelerators are in use today with varied applications in research, industry, medicine and other fields. Yet accelerator usage could be much more widespread, were it not limited by cost and size constraints, especially in hospitals, universities and small and medium size companies. This would enable ground-breaking applications and innovations on a much larger scale.

A possible solution to this bottleneck is the development of more compact – and consequently more cost efficient – accelerator technologies. A strategy that has been investigated in the past few decades is using laser plasma accelerators as one of the most promising candidates.

In plasma accelerators, a laser pulse (a short burst of light) is focused on a laser-driven plasma jet, creating a longitudinal plasma wave in its wake. Due to the energy difference inside the plasma wave structure, accelerating and focusing several bunches of the order of hundreds of trillions of electrons. These drive the acceleration of particles to energies of the order of GeV. With the first successful production of plasma acceleration made in 1985, corresponding experimental techniques have since been developed in particular in recent years involving both energy levels and technological milestones, including the staging of multiple plasma acceleration structures, the generation of plasma-based undulator radiation and the development of the first plasma-based medical machines.




credit: National Doctoral Institute, University

EuPRAXIA will be the first beam- and laser-driven plasma-based research facility with superior beam quality. It will tackle the limitations on size and cost and offer opportunities for a variety of different applications in accelerator and laser science, high-energy physics, material processing and analysis, photon science as well as medicine and life sciences.



EuPRAXIA^{DN} Fellows

Laser and Plasma

EuPRAXIA^{DN} capitalizes on the skills and addresses some of the key technological challenges of the new infrastructure across three scientific domains:

- Photon Science**
- Accelerator Science**
- High-Energy Physics**

Applications

- INSPECTION & MATERIAL STUDIES
- MEDICAL ACCELERATORS
- INDUSTRIAL APPLICATIONS
- PHOTON SCIENCE

David Gregoeki

was born in Slovakia, although he spent his university in Prague, Czech Republic. He obtained a bachelor's degree in Experimental Nuclear and Particle Physics (ENPP) and a master's degree in Nuclear and Particle Physics (NPP) during which he has been awarded merit scholarships based on outstanding achievements in his studies. Both his degrees were obtained from Czech Technical University. He held a research position during the period he has been working on plasma-based acceleration. Starting with diagnostic method of laser-wakefield acceleration (LWFA), David became acquainted with state-of-the-art methods for characterizing plasma acceleration. He received his thesis focused on the external injection of an electron bunch in the plasma wakefield with different plasma density profiles and their influence on electron bunch properties using 2D and 3D particle-in-cell simulations. David is now at the Institute of Photonics and Optics (IPO) of the University of Jyväskylä, Finland, where he is working on the development and characterization of laser-driven laser pulses for high-quality electron bunch acceleration.

Romain Demitri

is from Marseille, France. He studied at the Université Paris-Saclay where he graduated in 2022 from the master's program Large Scale Instruments - Photonics, Acceleration and Laser (LASER). He first studied laser-driven electron acceleration at the Laboratoire de Physique des Solides (LPS) where he worked on the laser-driven electron acceleration method of laser-wakefield acceleration (LWFA) when he looked at the laser-driven electron acceleration in plasmas during the first year of his master's thesis. He then moved to the Institut de Physique de la Matière Condensée (IPMC) where he worked on the laser-driven electron acceleration in plasmas during the second year. After graduation, he worked as an engineering physicist in the business magnet industry for one year before joining EuPRAXIA^{DN}. Romain is now at the Institute of Photonics and Optics (IPO) of the University of Jyväskylä, Finland, where he is working on the development and characterization of laser-driven laser pulses for high-quality electron bunch acceleration.

Flanish Ashley D'Souza

was born in India, he studied at the University of Pune, India. He obtained a bachelor's degree in Physics from the University of Pune, India. He then moved to the University of Jyväskylä, Finland, where he is working on the laser-driven electron acceleration in plasmas during the first year of his master's thesis. He then moved to the Institut de Physique de la Matière Condensée (IPMC) where he worked on the laser-driven electron acceleration in plasmas during the second year. After graduation, he worked as an engineering physicist in the business magnet industry for one year before joining EuPRAXIA^{DN}. Flanish is now at the Institute of Photonics and Optics (IPO) of the University of Jyväskylä, Finland, where he is working on the development and characterization of laser-driven laser pulses for high-quality electron bunch acceleration.

Alex Whitehead

was born in Ireland and grew up in France. He studied at the University of Jyväskylä, Finland, where he obtained a bachelor's degree in Physics from the University of Jyväskylä, Finland. He then moved to the University of Jyväskylä, Finland, where he is working on the laser-driven electron acceleration in plasmas during the first year of his master's thesis. He then moved to the Institut de Physique de la Matière Condensée (IPMC) where he worked on the laser-driven electron acceleration in plasmas during the second year. After graduation, he worked as an engineering physicist in the business magnet industry for one year before joining EuPRAXIA^{DN}. Alex is now at the Institute of Photonics and Optics (IPO) of the University of Jyväskylä, Finland, where he is working on the development and characterization of laser-driven laser pulses for high-quality electron bunch acceleration.

Work Package Applications

In the Applications work package, network partners join forces to develop breakthrough scientific monitors and pave the way for innovative applications.

Radiation therapy, a cornerstone of cancer treatment, is used in over 80% of cancer patients. The most frequently used types of radiotherapy employ proton or electron beams with laser-wake acceleration. Protons and ion beams offer substantial advantages over X-rays because the bulk of the beam energy is deposited in the Bragg peak. This allows dose to be confined to the tumor while sparing healthy tissue and organs at risk. The intensity of proton and ion-beam therapy can be precisely controlled. EuPRAXIA provides an exciting platform to develop highly flexible radiation sources which can drive proton and ion beams to be captured and focused regularly above the proton and ion-capture energies that pertain to conventional facilities, thereby avoiding the current space-charge limit on the instantaneous dose rate that can be delivered.

Barthelme Theod-Made Perambal at the Cockcroft Institute/University of Liverpool investigates laser-driven Proton Beam Therapy as a potential application with important health, economic and social impact. This project will build on advanced beam diagnostic for the challenges found in laser-driven ion beam cancer therapy. It will investigate the feasibility of near-time, short-by-time measurement of beam position, profile and intensity.

Light sources relying on non-linear Thomson scattering offer a compact and cost-effective alternative to conventional FELs. While this mechanism to generate-based accelerators can lead to intense X-rays, the emitted radiation tends to be incoherent. To address this limitation, Shashan Thakur at the University of Jyväskylä is investigating the concept of super-radiance in non-linear Thomson scattering that sets only on the laser and the plasma component of the acceleration, thus completely avoiding the use of an undulator magnet. This parallel drive to generate super-radiant emission with very high brightness, comparable to those produced by proton FELs, such as advanced FELs, the concept of light source one also offers a novel and significant platform for both fundamental research and various scientific applications.

Electric laser-driven Accelerators (ELAs) have several attractive features well-suited for compact, high-gradient accelerators. In 2021, the first high-gradient optical laser accelerator was demonstrated. The novel acceleration concept enables the creation of an accelerator with an on-chip footprint. With the advance of the science in the field, ELAs performance could be further improved by employing high-field laser pulses instead of optical lasers. Andrius Labanauskas at the University of Jyväskylä is investigating the laser-driven electron acceleration in plasmas during the first year of his master's thesis. He then moved to the Institut de Physique de la Matière Condensée (IPMC) where he worked on the laser-driven electron acceleration in plasmas during the second year. After graduation, he worked as an engineering physicist in the business magnet industry for one year before joining EuPRAXIA^{DN}. Andrius is now at the Institute of Photonics and Optics (IPO) of the University of Jyväskylä, Finland, where he is working on the development and characterization of laser-driven laser pulses for high-quality electron bunch acceleration.



Skills School

- PhD project-specific part
 - Presentation skills
 - Scientific writing
 - Project management
- Generic skills through outreach project
 - Team working
 - Proposal writing
 - Peer review
 - Working under (time) pressure

*"I hadn't really thought of myself
as a project manager until today!"*



Skills School



MSCA Info Day 2023



Brussels, 8/9 November 2023: **Exemplary exploitation of synergies!**

Media Skills School



- **CONCEPTING, CREATIVE & PLANNING** materials covering production methodologies, ideas, mood-boards, story-telling in the specific area of scientific communication
- **SCRIPTING & STORYBOARDING** of a scientific communications films. Including script, storyboards, animatic, shot list, look development and 2D animation asset creation to be used as film content.
- **POST-PRODUCTION, MOTION GRAPHICS:** Preparation of assets to be used for titles and selection of audio clips for titles and backdrop for scientific film.
- **DELIVERY, RELEASE & SHARING** training course covering: formats, versioning, outlets and networks, hashtags, metatags, platforms, channels, storage, automated social media and tracking metrics.

Media Skills School



Prof Carsten P Welsch, EuPRAXIA Camp II – Science. Lisbon, Portugal – 14/15 July 2025

EuPRAXIA-DN Film

Thus far ~20,000 views

Sustainable video production, use of AI, recognized as EU success story.



<https://youtu.be/6NPgxCdffrE>



EuPRAXIA-DN Newsletter



>>> Newsletter

Latest developments in plasma accelerator research and training.



>>> Highlights



EuPRAXIA-DN Camp I
on Technologies held in
Pisa



EuPRAXIA Seminar
Series live for bookings



Meet our EuPRAXIA
Doctoral Network
Fellows - Part 4

>>> Welcome

New EuPRAXIA leadership and training excellence

We have now launched our EuPRAXIA Camps, cutting-edge science focused workshops, that take place at EuPRAXIA partners across Europe. Our first Camp brought us to CNR in Pisa, Italy where we enjoyed the fantastic hospitality of our hosts and had excellent discussions about the technologies that will be required for future plasma accelerator-based research infrastructures. A number of talks will now be developed

into full articles with our partner journal Instruments, and I already look forward to reading those papers. Many thanks to everyone who contributed to this workshop! Our second Camp is already on the Horizon, and will take us to Lisbon, Portugal in July. This time, we will focus on the science program at EuPRAXIA and discuss a clear roadmap to experiments that will push the boundaries and allow us to fully exploit the science

and discovery potential of EuPRAXIA. You will find details about the program in this newsletter, and I would advice you to register as soon as you can as the deadline is fast approaching, and places are strictly limited.



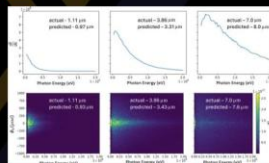
Prof Carsten P. Welsch
Coordinator

www.eupraxia-dn.org

Issue 02 | June 2024

>>> Research Highlights

Reconstruction of beam parameters and betatron radiation spectra measured with a Compton spectrometer



Displayed are example spectra for beams with different spot sizes, featuring both 1D and 2D differential spectra. Each spectrum is plotted with its actual spot size followed by the predicted spot size, as determined by the direct 1D or double differential fit, versus M. Voss et al. Phys. Rev. Accel. Beams 26, 042802 (2023).

A recent study published in *Physical Review Accelerators and Beams* introduces advanced methods for reconstructing electron beam parameters and betatron radiation spectra using a Compton spectrometer. This work is particularly relevant for high-energy plasma wakefield acceleration experiments, such as those planned at the FACET-II facility at SLAC National Accelerator Laboratory.

The research team, comprising scientists from institutions including the University of California, Los Angeles, the University of Liverpool, and the University of Manchester, focused on analysing the photon flux generated when high-energy electron beams interact with intense electromagnetic fields. These interactions produce betatron radiation, which carries valuable information about the electron beam's characteristics. However, extracting precise beam parameters from the resulting photon spectra is a complex challenge.

To address this, the researchers employed simulated data modelling betatron radiation from plasma wakefield acceleration scenarios. They compared traditional maximum likelihood estimation

techniques with modern machine learning approaches, including multilayer neural networks, to interpret the energy and angular distributions of the detected photons. By applying these methods, they successfully reconstructed key beam properties such as spot size, energy, and emittance with high accuracy.

Notably, the study demonstrated that machine learning algorithms could effectively handle the intricate relationship between the observed photon spectra and the underlying beam dynamics. This capability is crucial for optimising beam performance in high-field environments and advancing our understanding of beam-plasma interactions.

The findings underscore the potential of integrating advanced computational techniques into beam diagnostics, paving the way for more precise control and analysis in next-generation accelerator experiments. As the field moves toward increasingly sophisticated setups, such methodologies will be instrumental in achieving desired beam qualities and enhancing experimental outcomes.

Further reading:
M. Voss et al. *Physical Review Accelerators and Beams* 26(4), 042802 (April 2023)
<https://doi.org/10.1103/PhysRevAccelBeams.26.042802>

Issue 04 | May 2025

Page 2 of 23

>>> Network News

Joint LIV.INNO and EuPRAXIA-DN skills school hosted in Liverpool

The third cohort of LIV.INNO students were joined by researchers from EuPRAXIA-DN project to take part in an introductory skills school in Liverpool from 20th – 24th January 2025. The students undertook training in a range of skills which will help them while they undertake their PhD and prepare them for the world of work beyond their PhD.

Cutting-edge postgraduate researcher training schemes guarantee international competitiveness of the researchers trained and provide them with the necessary skills for a future career as researcher in either the academic sector or in industry. The concept for this course was developed by Professor Carsten P. Welsch during the delivery of his previous training networks and has been praised in formal project reviews as 'best practice' in Europe.

On the first day the students were introduced to the school and given training in presentation skills by Dr Joe Wolfenden, LIV.INNO EDI co-ordinator. This session allowed the students to get to know each other a little better and help to prepare them for further presentation skills training later in the week.

Later that day Naomi Smith, LIV.INNO Centre Manager and Outreach co-ordinator, delivered sessions on Science Communication and Outreach. This allowed the students to understand why they need to communicate their work and how to go about it as well as preparing them for the week's task which was creating an outreach proposal.

On the second day Dr Fraser Robertson from Frittal delivered a session on Project Management. This ever-popular session allowed the students to better understand techniques they can use to manage their PhDs as well as helping them prepare their outreach proposal. The students also learned about the process of Peer Review from Dr Eva Villalba-Figueroa of the University of Liverpool, a subject with which they will become more familiar as they produce their first journal papers.

On the third day the school relocated to Daresbury Laboratory. The students spent the morning honing their presentation skills further by giving presentations about their PhD projects and receiving detailed feedback from their trainers and their peers.



Students from EuPRAXIA-DN and LIV.INNO working together during the school.
(Credit: OUSAR Group)

Page 3 of 23

>>> Upcoming Events

EuPRAXIA-DN School on Plasma Accelerators 22 - 26 April 2024, Rome, Italy

Several tens of thousands of particle accelerators are in use today with varied applications in research, industry, medicine and other fields. Yet accelerator usage could be much more widespread, were it not limited by cost and size constraints, especially in hospitals, universities, and small and medium size companies. This would enable ground-breaking applications and innovations on a much larger scale.

A possible solution to this bottleneck is the development of more compact – and consequently more cost-efficient – accelerator technologies, a strategy that has been investigated in the past two decades bringing forth plasma accelerators as one of its most promising candidates.

This interdisciplinary school will bring together all research areas within EuPRAXIA-DN and will be held in the 'Eternal City' Rome in Italy from 22-26 April 2024. Lectures and topical talks will be presented by research leaders from academia and industry.

The school will be organized in partnership with INFN and introduce the basic principles of plasma accelerators, including basic plasma physics, laser and beam-driven acceleration, plasma injection schemes, plasma and beam diagnostics, particle-in-cell codes, as well as specific high impact projects, including EuPRAXIA and AWAKE.

Tutorial sessions in smaller problem classes will reinforce content and promote discussion. All participants will be given the opportunity to present their own research in a poster session.

Social events, an excursion to INFN-LNF, and a public talk on plasma accelerator science and technology will complement the diverse and interesting programme.

Several scholarships for early-stage researchers from outside of the EuPRAXIA Doctoral Network will be available.

For more information and to register please visit:
<https://agenda.infn.it/eupraxia-school-on-plasma-accelerators>

Registration deadline: 29th February 2024



The EuPRAXIA-DN School will take place at the Botanical Garden of Rome.

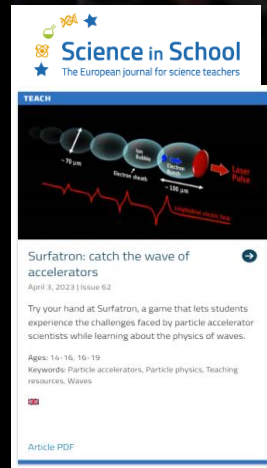
Issue 01 | December 2023

Page 9 of 11

<https://www.eupraxia-dn.org/newsletter>

Prof Carsten P Welsch, EuPRAXIA Camp II – Science. Lisbon, Portugal – 14/15 July 2025

Outreach



International successes:

- Physics of Star Wars
- *Surfatron*

Social Media

All communication activities are supported by established **social media** channels:



@TheQuasarGroup, @Inf.infn.it



@quasar_group, @Inf_infn, @livuniphysics



EuPRAXIA, QUASAR Group Project T.E.A.M

Workshop overview

Registration	
	Anfiteatro Abreu Faro, Instituto Superior Técnico 08:30 - 09:00
09:00	Welcome / admin & logistics Rogério Colaço et al. 09:00 - 09:30
	Session 1: HPC for laser plasma accelerators
10:00	Anfiteatro Abreu Faro, Instituto Superior Técnico 09:30 - 10:30
	Coffee break
	Anfiteatro Abreu Faro, Instituto Superior Técnico 10:30 - 11:00
11:00	Session 1: HPC for laser plasma accelerators
	Anfiteatro Abreu Faro, Instituto Superior Técnico 11:00 - 11:45
12:00	Group photo and lab tour
	Anfiteatro Abreu Faro, Instituto Superior Técnico 11:45 - 12:30
	Lunch
13:00	Anfiteatro Abreu Faro, Instituto Superior Técnico 12:30 - 14:00
14:00	Session 2: FEL driven by LWFA
15:00	Anfiteatro Abreu Faro, Instituto Superior Técnico 14:00 - 16:00
16:00	Discussion session
	Anfiteatro Abreu Faro, Instituto Superior Técnico 16:00 - 16:15
	Coffee break
	Anfiteatro Abreu Faro, Instituto Superior Técnico 16:15 - 16:45
17:00	Poster session
	Anfiteatro Abreu Faro, Instituto Superior Técnico 16:45 - 18:00

09:00	Session 3: Betatron radiation - Theory
	Anfiteatro Abreu Faro, Instituto Superior Técnico 09:00 - 10:30
10:00	Coffee break
	Anfiteatro Abreu Faro, Instituto Superior Técnico 10:30 - 11:00
11:00	Session 4: Direct Laser Acceleration
	Anfiteatro Abreu Faro, Instituto Superior Técnico 11:00 - 12:30
12:00	Lunch
13:00	Anfiteatro Abreu Faro, Instituto Superior Técnico 12:30 - 14:00
14:00	Session 5: Laser-induced Plasma Science
15:00	Anfiteatro Abreu Faro, Instituto Superior Técnico 14:00 - 15:45
16:00	Putting it all together / Discussion Carsten Peter Welsch
	Anfiteatro Abreu Faro, Instituto Superior Técnico 15:45 - 16:00
	End of workshop
	Anfiteatro Abreu Faro, Instituto Superior Técnico 16:00 - 16:20

Contact in case of Emergency

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Camp II – Overview

- In this challenge-led workshop we will look into the fundamental science that is enabled by plasma accelerators.
- There will be keynote talks in each session to “set the scene”
- These will be followed by R&D talks about the latest research, with plenty of time for discussion. A poster session this afternoon will cover an even wider area.
- Important: Get to know other participants – network, and become part of the EuPRAXIA family. Also: Get out of your comfort zone!

Enjoy the Camp!



EuPRAXIA

Doctoral Network



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