



European Laser Research Infrastructures serving Science and Industry

Grant Agreement N° 101131771

WP 2

D2.4: Newsletter 3

Young scientists in the lab

Lead Beneficiary: Laserlab-Europe AISBL (LLE-AISBL)

Due date of deliverable: M24 - 30.09.2026

Type and dissemination level: DEC, Public

Laserlab Forum



Newsletter of Lasers4EU/Laserlab-Europe:
the integrated initiative of European laser
infrastructures co-funded by the European
Union's Horizon Europe programme

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Young scientists in the lab



Myrto
Charitaki



Sabin
Mihai



Gordon
Zyla



Aradhana
Dwivedi



Igor
Tyulnev



Hugo
Marroux



Gonalo
Vaz



Dimitra
Ladika

Hugo Marroux from the Attosecond Physics Group at LIDYL (CEA) at work in the lab

L. Godart/CEA

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Editorial



Sylvie Jacquemot

Young researchers are key to the future of laser science in Europe. In this issue of Laserlab Forum, we therefore put the spotlight on eight young scientists from our community. They tell us about their careers, their current research and how Laserlab-Europe and Lasers4EU, including access to its facilities, have supported them along the way.

We also have some excellent news from our community: three projects involving researchers from the Laserlab-Europe network have received prestigious ERC Synergy Grants. With only a small number of projects funded each year, having three successful projects from our community is a great achievement.

Our ERC section also shows where such curiosity-driven research can lead. A project that starts with a scientific question can, over time, lead to new technologies and applications well beyond the laboratory. It is a good reminder of why supporting new ideas and the researchers behind them is so important.

I hope you enjoy discovering the stories, research and achievements featured in this issue.

Sylvie Jacquemot

News

EUROPA project begins work on compact laser-driven accelerators



The EUROPA project (lasEr-driven Universal Radio-isOtope Production Accelerator) officially launched on 1 April 2026 as a European initiative aiming to assess alternative routes for production of medical radioisotopes for cancer research on diagnosis and treatment. Bringing together a consortium of 12 leading research institutes, universities and industrial partners, EUROPA seeks to unlock the potential of laser-plasma acceleration (LPA) to develop a new generation of compact particle accelerators. It is funded by the European Innovation Council under the EU Horizon Europe program with 3.5 million euro (grant agreement 101257418). The consortium consists of IMT Atlantique (as co-ordinator), CNRS, CEA, University of Bordeaux, University of Strathclyde, IFIN-HH, Laserlab-Europe, CLPU, GSI, Thales, Amplitude and Focused Energy. The duration of the project will be 48 months.

European-American collaboration achieves up to 10x boost in relativistic particle and gamma ray flux at NIF-ARC

A European collaboration led by Fabrizio Con-
soli (ENEA) and Olga Rosmej (Goethe University

Frankfurt/GSI) has successfully demonstrated a new approach to generating ultra-bright MeV photon sources at the National Ignition Facility (NIF).

Building on seven years of research at the PHELIX (GSI) and ABC (ENEA) laser facilities, the team used low-density foam targets to drive direct laser acceleration (DLA) of electrons with NIF's Advanced Radiographic Capability (ARC) laser. The campaign was executed in February 2026, demonstrating an up to 10-fold increase in relativistic electron flux and MeV Bremsstrahlung in the region of giant dipole resonance per Joule laser energy than previously reported CPC benchmarks.



Damien Jemison/Lawrence Livermore National Laboratory, cropped,
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This multi-disciplinary and successful collaboration activity is closely related to both the two Laserlab-Europe AISBL Expert Groups “Micro- and nano-structured materials for experiments with high-power lasers” and “Laser-driven Inertial Confinement Fusion (ICF) – Inertial Fusion Energy (IFE)”.

From nanoSCAN innovation to a new startup in precision medicine

Lumnora, a recently established deep-tech startup, has emerged from the EIC Transition-funded nanoSCAN project, a European collaboration dedicated to advancing spatial biology through next-generation imaging technologies. The nanoSCAN consortium brings together partners from ISMO, POLIMI, CNR-IFN, Abbelight and Laserlab-Europe, integrating academic research, industrial experience and access to advanced laser infrastructures to deliver breakthrough photonic chips and integrated optical systems.

Building on the technological advances achieved within nanoSCAN, Lumnora was founded to translate these innovations into so-



Members of the Lumnora team after the startup's foundation

lutions for a critical biomedical challenge: the analysis of extracellular vesicles (EVs). These nanoscale particles, released by cells into body fluids, carry valuable molecular information that can provide early insights into disease processes, often long before clinical symptoms appear.

Scientists unlock new route to extreme light intensification

An international team of physicists, including scientists from the CLF, has achieved a landmark advance in laser science. They have demonstrated a practical route to dramatically boosting the intensity of high-power laser light for the first time. Using the Gemini laser at the CLF, the team created extremely bright ultraviolet light through an unusual process. In simple terms, they fired an intense laser at a cloud of

About Laserlab-Europe and Lasers4EU

Laserlab-Europe AISBL brings together 48 leading laser research infrastructures across 22 European countries. It promotes the development and application of advanced lasers and laser-based technologies through coordinated networking and joint research.

Our key initiative, Lasers4EU, is your go-to resource for having access to a vast network of 29 cutting-edge laser research infrastructures across Europe. Whether you are a researcher seeking specialised facilities for your scientific projects or an industry professional aiming to leverage state-of-the-art laser technology, Lasers4EU offers a streamlined platform to connect you with facilities best suited to your needs. Beyond access, we provide comprehensive training opportunities, equipping users with the skills and knowledge required to fully utilise these world-class infrastructures.



Members of the experimental team in the Gemini laser target area. In the background is the Gemini target chamber.

charged particles (a plasma), causing it to behave like a rapidly moving mirror. The results, published in *Nature*, could unlock the path towards creating the most intense light ever produced in a laboratory, opening the door to experiments that probe the fundamental laws of physics by directly interacting light with the quantum vacuum.

<https://doi.org/10.1038/s41586-026-10400-2>

Understanding extreme states of matter faster

Researchers at HZDR have developed a breakthrough simulation method that accelerates the analysis of extreme states of matter by up to 50 times. Published in *npj Computational Materials*, the new procedure optimizes simulations used to interpret X-ray scattering experiments at large facilities like the European XFEL. Extreme conditions previously required immense supercomputing time due to numerical noise. The novel technique filters out these artifacts using a mathematical transformation into so-called imaginary time, keeping the signal's physical structure intact. This drastic acceleration will allow scientists to conduct comprehensive parameter studies. Ultimately, this breakthrough will significantly advance clean fusion energy research and laboratory astrophysics.

<https://doi.org/10.1038/s41524-026-02088-9>

In memoriam: Freek Arieze

It is with great sadness that we announce the passing of Dr. Freek Arieze, Associate Professor at Vrije Universiteit Amsterdam, Deputy Director of LaserLaB Amsterdam, and a key figure in Laserlab-Europe. Freek passed away unexpectedly in early January 2026. He will be deeply missed.



In memoriam: Orazio Svelto

Laserlab-Europe mourns the loss of Orazio Svelto, one of the founding figures of modern laser physics at POLIMI/CUSBO, which was one of the founding members of Laserlab-Europe. He passed away in January 2026, shortly before his 90th birthday.



ERC Grants

Fantastic news for the Laserlab-Europe community: Three projects involving researchers from within our network have been awarded prestigious ERC Synergy Grants. These grants have significantly fewer applications and approved projects than for other ERC calls, given the high requirements for interdisciplinarity, complementarity and demonstrating synergies between areas. Congratulations also to Antonina Chaban from CNR-INO on receiving an ERC Starting Grant.

Antonina Chaban (CNR-INO): Advancing heritage science procedures for depth-resolved condition risk assessment of wall paintings



Heritage scientist Antonina Chaban won an ERC Starting Grant for her project HeRiDe: "Advancing HeRitage science procedures for Depth-resolved condition risk assessment of wall

paintings", which started on 1 February 2026. The winning proposal builds on preliminary feasibility studies carried out also through two Laserlab-Europe access projects implemented at the IESL-FORTH facilities in Greece, which provided essential groundwork for the successful ERC proposal. Over the next five years, her team will be working on advancing the understanding of the condition of wall paintings. For this, they will develop a new diagnostic approach by combining complementary non-invasive optical methods, and an open-source software tool to support conservators in decision-making based on in situ diagnostic data.

CONCERT: Capturing and controlling conical intersections in Real Time

Understanding how light interacts with matter – and ultimately using light to guide the behavior of molecules: this is the challenge at the heart of CONCERT (Capturing and cONTrolling conical intErsections in Real Time), winner of an ERC Synergy Grant worth 10 million euros.

The initiative brings together an international team of excellence, combining expertise in physics, chemistry, ultrafast spectroscopy and laser technology. It includes Giulio Cerullo (POLIMI), Caterina Vozzi (CNR), Marco Garavelli (University of Bologna), Shaul Mukamel (University of California), together with researchers from the ELETTRA Synchrotron in Trieste.



When light hits a molecule, it can trigger ultrafast chemical transformations occurring in just a few millionths of a billionth of a second. These processes, fundamental to phenomena such as vision, photosynthesis, and DNA protection from UV rays, are governed by elusive quantum effects which still escape traditional observation techniques.

To unveil them, CONCERT will develop new laser instruments capable of generating ultrashort light pulses to capture a sequence of frames showing the molecular evolution. This will make it possible to build a true "molecular movie" and observe the so-called conical intersections, critical points where two energy states of a molecule meet and the rules of classical chemistry no longer apply.

IDEAA: Imaging the Dynamics of Electrons with Attosecond and Angstrom resolution

Four DESY scientists initiated the IDEAA project: Saša Bajt, Francesca Calegari, Henry Chapman, and Nina Rohringer. IDEAA targets the synergistic creation of experimental and theoretical toolboxes, leveraging innovative attosecond time-resolved X-ray techniques, to capture electron dynamics within molecules with unprecedented ångström and attosecond resolution in space and time. Access to the electron time scale in molecules has opened



The IDEAA team: (from left) Saša Bajt, Nina Rohringer, Francesca Calegari, and Henry Chapman

tremendous new perspectives to direct chemistry through pathways otherwise not accessible by conventional chemistry, ultimately creating novel light harnessing approaches that enhance the efficiency of photochemical protocols. Despite strides in the understanding of how numerous electronic and vibronic interactions drive the responses of molecules, the precise control of reaction pathways remains elusive. In their project, they will use attosecond X-ray crystallography and soft-X-ray attosecond interferometry to create "molecular movies" with electrons as the central actors. IDEAA is awarded nearly 14 million euro.

NP-QED: Probing the nonperturbative regime of Quantum Electrodynamics with extreme light

The NP-QED project aims at testing the predictions of Quantum Electrodynamics (QED) – the theory of light matter interactions – in



The NP-QED team: (from left) Andreas Maier and Jenny List from DESY, Henri Vincenti from CEA-LIDYL, and Antonino Di Piazza from the University of Rochester

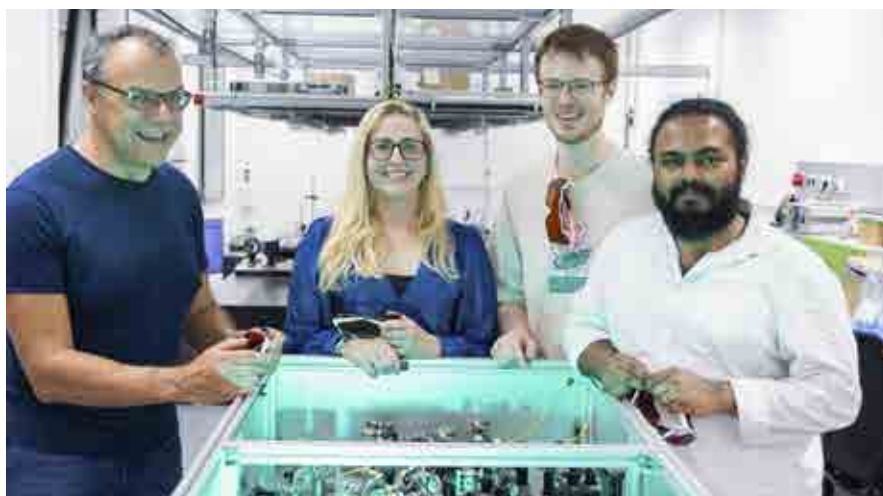
yet unexplored, extreme regimes. The first of these is the strong-field regime of QED, which begins when light amplitude hits the threshold of vacuum breakdown, occurring at the Schwinger field limit $\sim 10^{18}$ V/m. At this threshold, it is predicted that a light beam can deflect another light beam in a vacuum – violating Maxwell's equations – and even generate electron positron pairs from the vacuum itself. Due to the huge field strengths required, SF-QED predictions have never been tested in a laboratory. Pushing three orders of magni-

tude beyond the Schwinger limit, the second regime explored by this project is the fully non-perturbative regime of QED. This is a completely uncharted area where current theoretical approaches are expected to fail, making it an active frontier of discovery for contemporary physics. The project team is a collaboration between DESY scientists Jenny List and Andreas Maier alongside Henri Vincenti from CEA-LIDYL and Antonino Di Piazza from the University of Rochester in the USA. NP-QED is awarded nearly 14 million euro.



From laser research to real-world impact: TU Graz develops a laser device for air quality monitoring

Researchers at TU Graz have developed a compact UV dual-comb spectrometer for monitoring gaseous air pollutants. The device is the outcome of several years of laser spectroscopy research supported by the European Research Council (ERC) and the Austrian Science Fund (FWF), with the novel laser source financed through NAWI Graz's infrastructure program.



Oliver Wolf - TU Graz

From left: Rolf Breinbauer, Birgitta Schultze-Bernhardt, Clemens Hofmann, and Mithun Pal next to the UV spectrometer

The spectrometer detects gaseous pollutants with high sensitivity. Instead of measuring a single substance at a fixed monitoring station, it can distinguish different gases by analyzing their unique optical fingerprints. Using ultra-violet laser light, it measures gas concentrations within fractions of a second over distances of up to 2.5 kilometers, making it suitable for measurements both in the laboratory and in the field. Potential applications include air-quality monitoring in cities, the detection of industrial gas leaks and environmental measurements in agricultural regions.

The technology grew out of a series of research projects led by physicist Birgitta Bernhardt. In 2020, physicist Birgitta Bernhardt received an ERC Starting Grant for the project ELFIS (Electronic Fingerprint Spectroscopy). The project focused on developing new approaches to ultra-violet dual-comb spectroscopy, a laser-based technique capable of identifying molecules by their characteristic optical signatures. Over the following years, the team de-

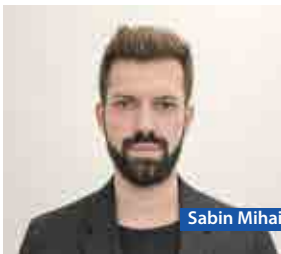
veloped the methods behind the new instrument and built the experimental infrastructure needed for the research.

In 2025, Bernhardt was awarded an ERC Proof of Concept Grant for the project MULTI TRACE, which supports the next step of turning the laboratory system into a portable instrument that can be used outside specialized research environments. The long-term goal is to provide a single device capable of monitoring several air pollutants simultaneously, reducing the need for multiple dedicated instruments.

The team's latest prototype, presented in June 2026, brings the technology a step closer to practical use beyond the laboratory. Besides environmental monitoring in cities, the technology could be used to detect industrial gas leaks or support measurements in agriculture. The same instrument has also contributed to basic research by improving measurements of formaldehyde absorption, providing more accurate data for atmospheric science.



Myrto Charitaki



Sabin Mihai



Gordon Zyla



Aradhana Dwivedi



Igor Tyulnev



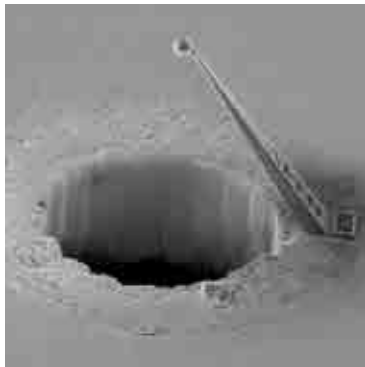
Hugo Marroux



Gonalo Vaz

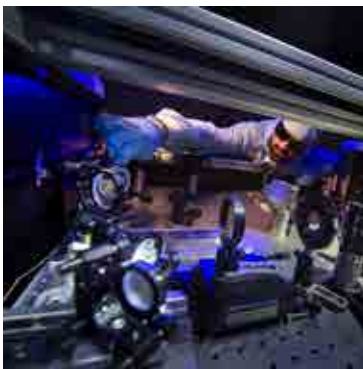


Dimitra Ladika



Young scientists in the lab

One of the main objectives of Laserlab-Europe is to strengthen the leading role of Europe in laser research. Evidently, providing a stimulating and nourishing environment for (young) researchers is an important aspect of this task. In this focus section a number of European laser scientists give some insight into their past and current occupations, and the influence Laserlab-Europe has had on their careers.



“My journey started during my bachelor Biomedical Sciences, where I became fascinated by how we could use nanoparticles to deliver drugs more effectively. Therefore, I followed a Master’s in Protein Biotechnology, where I worked on the development of stimuli-responsive protein-polymer nanoparticles for controlled drug delivery.

Today, I’m a PhD candidate at the University of Crete, working at the interface of two worlds: the Nonlinear Lithography (NLL) group led by Dr. Maria Farsari and the



Myrto Charitaki

2024–present

PhD at University of Crete /
IESL-FORTH, Heraklion

2021–2023

MSc in Protein Biotechnology,
University of Crete

„Laserlab-Europe has shown me that the most impactful science happens when we break down the boundaries between disciplines.”

Tissue Engineering, Regenerative Medicine and Immunoen지니어ing (TERMIM) Lab led by Dr. Anthi Ranella, at IESL-FORTH. My work is a daily mix of designing bioinspired scaffolds and using advanced laser processing to bring those 3D designs to life. It’s a space where biology meets photonics to solve real-world medical challenges.

Working at FORTH-IESL puts me right in the heart of the Laserlab-Europe ecosystem. For a young researcher, this environment is incredibly “nourishing”. It’s not just about having access to world-class femtosecond lasers; it’s about the community. Whether it’s through shared workshops or just being part of a facility that hosts international users, Laserlab-Europe has shown me that the most impactful science happens when we break down the boundaries between disciplines.

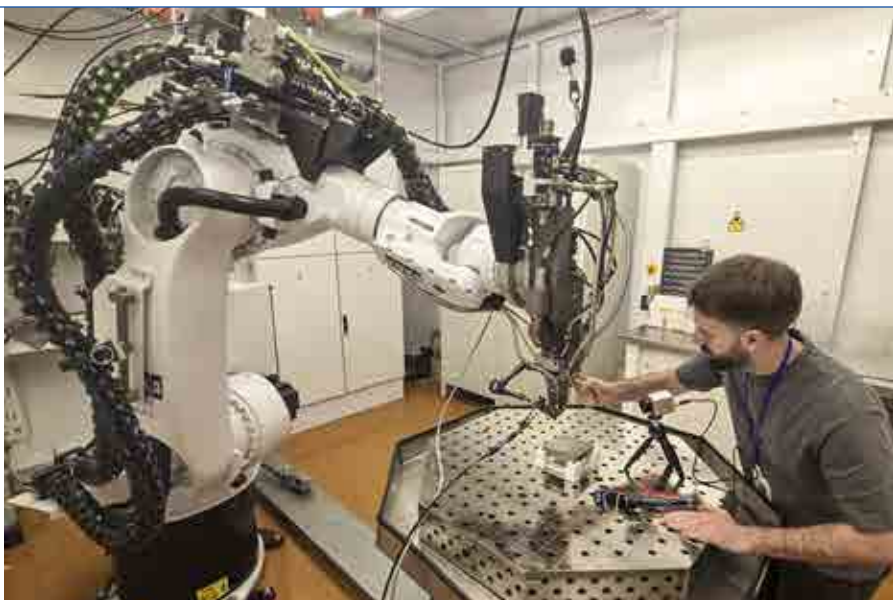
Being part of this ecosystem has influenced my research direction by reinforcing the importance of high-resolution laser-based fabrication techniques, such as multiphoton lithography, in enabling next-generation biomaterials. It has also highlighted the value of collaboration and knowledge exchange across different scientific fields, which is essential for tackling complex challenges in tissue engineering and regenerative medicine.”



Sabin Mihai



- 2022–present** Research & Development Engineer at the Center for Advanced Laser Technologies (CETAL), Bucharest
- 2021–present** PhD in Industrial Engineering and Robotics, National University of Science and Technology Politehnica Bucharest
- 2019–2021** MSc in Industrial Engineering, Politehnica University of Bucharest



“During my training in industrial engineering, I became increasingly interested in how high-power lasers can be used for precise and innovative applications such as additive manufacturing, welding, cutting, and surface microstructuring. This combination of scientific challenge and industrial relevance motivated me to continue in laser science and research.

My work involves developing laser technologies and applications. Besides the common activities in a laser laboratory like laser operation, tuning of parameters and physical-chemical characterization of processed materials, I am also programming robotic laser systems for process automatization. In our industrial projects, I am assisting companies with laser consulting and I participate actively in technological transfers of laser technology.

Our laboratory in CETAL is part of the National Platform of Semiconductors Technology, an 130 million euros

“In 2026, I plan to access the Lasers4EU infrastructure together with an industrial partner that wants to test the integration of particular laser sources in their technologies.”

national project, where, together with some national companies we have to develop two technologies, one for semiconductors microstructuring and another for cutting them, together with processing machines that will perform these operations in an industrial environment. Another interesting project where I am involved aims to develop at TRL 8-9 a laser hardening technology using a high-power laser source developed in INFLPR. The technology will solve a punctual problem of a car parts manufacturer in Romania.

I have been part of Laserlab-Europe funded joint experiments that needed experimental assistance, and in 2026, I plan to access the Lasers4EU infrastructure together with an industrial partner that wants to test the integration of particular laser sources in their technologies. I would be very glad to further develop my involvement with initiatives in Lasers4EU, as these networks are very important for scientific exchange, access to expertise, and future collaborations.”

"I am currently a senior researcher at the Laser Research Center at Vilnius University, working with femtosecond lasers to induce a nonlinear phenomenon in photosensitive materials, enabling true 3D printing at the micro- and nanoscale using a technique known as multiphoton lithography (MPL).

Although my original background is in mechanical engineering, I discovered my interest in applied laser technology during my master's thesis, where I worked with MPL for the first time. I was fascinated by how light can be used to shape matter with such precision, and this fascination has continued to excite me in my work to this day.

In line with my current research, my work aims to advance MPL beyond its current limits to enable the fabrication of complex 3D structures for advanced light manipulation. However, this is not purely a physics or engineering challenge. Achieving this requires close collaboration at both national and international levels to develop new pho-



Vilnius University

Gordon Zyla

2025–present	Senior Researcher, VU-LRC, Vilnius
2022–2024	Marie Skłodowska-Curie Postdoctoral Fellow (European Union) and Feodor Lynen Fellow (Alexander von Humboldt Foundation)
2021–2022	Postdoctoral Research Fellow, IESL-FORTH, Heraklion
2020–2021	PhD at Ruhr University Bochum (RUB)

“Laserlab-Europe and Lasers4EU provide a unique platform to establish collaborations and rapidly strengthen research activities”

tosensitive materials, deepen the understanding of light-matter interactions, and integrate printed structures into functional devices.

Laserlab-Europe and Lasers4EU provide a unique platform to establish collaborations and rapidly strengthen research activities by bringing together expertise from closely related fields, which would otherwise be difficult to obtain. I have personally experienced this by hosting multiple users and by participating as a user in the recently established RIANA project, which supports access to research infrastructures through facilities connected to Laserlab-Europe and Lasers4EU.”

A device developed using multiphoton lithography, designed for integration into optical microscopes to enhance lateral resolution; achieved with support from Laserlab-Europe by scientists from the Institute of IESL-FORTH, the University of Helsinki, and Ruhr University Bochum.

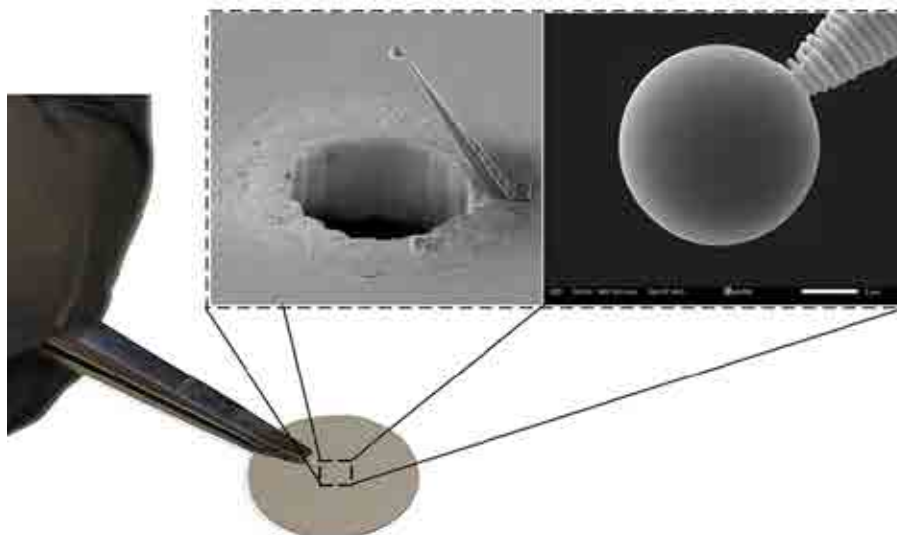
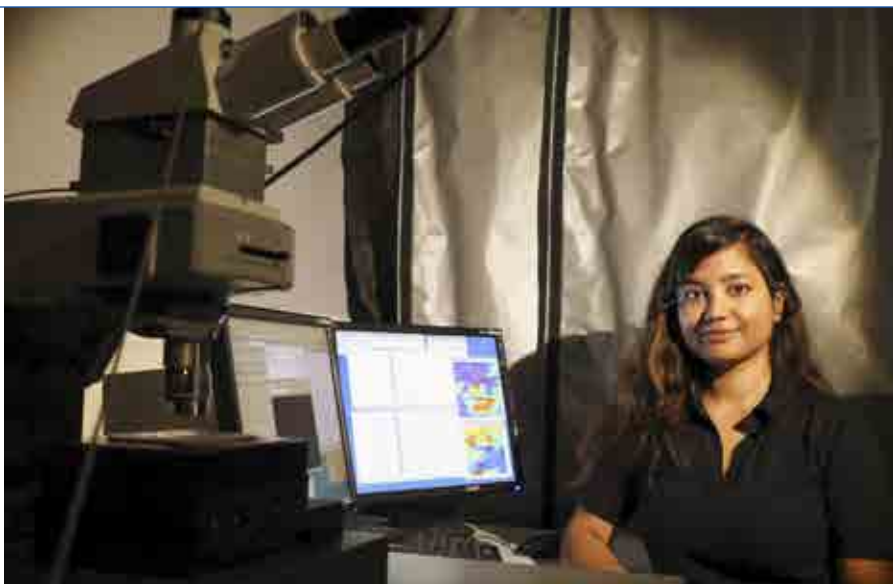


Image adapted from Zyla et al. Light: Advanced Manufacturing (2024)5:19 <https://doi.org/10.37188/lam.2024.019>



Leibniz-IPHT



Leibniz-IPHT

Aradhana Dwivedi

2022–present	PhD Researcher, Leibniz-IPHT, Jena
2020–2022	Research Scholar, University of Luxembourg
2019–2020	Research Scholar, IIT Delhi, India
2017–2019	MSc in Physics, Central University of Haryana, India

"I am currently a PhD researcher at the Leibniz Institute of Photonic Technology in Jena, Germany, where I develop plasmonic sensing platforms for Surface-Enhanced Raman Spectroscopy (SERS). I'm originally from India, and studied physics at the Central University of Haryana. My first real taste of research came during my Master's thesis at the Indira Gandhi Centre for Atomic Research in Kalpakkam, where I worked on SERS substrates for environmental and toxicity sensing. That was where I first saw what lasers and nanostructures can do together, and I've been following that thread ever since. It eventually brought me to Germany, where I now work on the biomedical side of the same question.

I was one of those children who take things apart to see what's inside, and physics was the first subject that treated that impulse as a serious way of thinking. What drew me in properly, later on, was light-matter interaction. There is something quietly beautiful about it: you shine a laser

"The 'Women in Photonics' workshop broadened my perspective on career paths in photonics, and I look forward to being involved in future Lasers4EU activities"

on a sample, and it tells you which molecules are present, without you having to touch or destroy anything. And if you design the surface underneath cleverly enough, a signal that was almost invisible becomes orders of magnitude stronger. Once I understood that, I knew what I wanted to spend my time on.

In June 2025, I participated in the "Women in Photonics" workshop in Jena, organized by Leibniz IPHT with financial support from Lasers4EU. The workshop brought together early-career researchers from different countries and career stages. The format was genuinely interactive: participants presented their own work alongside career reports from women established in academia and industry, and the accompanying career workshops made space for questions about professional development that are rarely discussed so openly. It broadened my perspective on the research directions and career paths open within photonics, and I look forward to being more involved in future Lasers4EU activities as my career develops."

"I was always intrigued by the question of how the world around us functions, and consumed many popular science shows on television. Combined with the laid back but very didactical approach by my teachers, this led me to pursue science as a topic in university. Especially an introductory talk on Bose-Einstein condensates during a university open door day pushed me over the edge to choose physics as my subject of study.

After having defended my PhD thesis in February 2026 I assumed the role of a postdoctoral researcher at ICFO. Most of my projects concern the study of condensed matter systems under the influence of strong laser fields or during their phase transitions. This work tries to establish a novel technique, high-harmonic spectroscopy, as a viable all-optical tool for material research.

Our recent proof-of-concept grant was accepted by the European funding agency, allowing the continuation of our project on optical computing, based in the control of bandgap extrema, so called valleys, via laser pulses with tailored polarization states. The ERC grant will allow us to



ICFO

Igor Tyulnev

2026–present	Postdoctoral researcher at ICFO, Castelldefels
2026	PhD in Physics at ICFO
2019	MSc in Physics at University of Hamburg



“The Lasers4EU network offers a great opportunity to directly visit partner laboratories.”

focus further on the nano-fabrication side to push towards real-world applications of this technology.

For me, the networks of Laserlab-Europe and Lasers4EU have encouraged a valuable exchange of ideas, helping to find a common language between different sub-fields and set common practices to make results easily comparable. Plus, it's always nice to meet other members at conferences and online meetings, and the network offers a great opportunity to directly visit partner laboratories.”

"From the early stages of my career, I have been fascinated by the possibility of observing quantum processes as they unfold in real time. What led me to pursue physics – and more specifically laser science – was the opportunity to see molecular dynamics on previously inaccessible timescales, both in isolated systems and in solution.

Today, my research focuses on understanding how molecules respond to laser irradiation on femtosecond to attosecond timescales. I am particularly interested in how electronic motion evolves in complex environments such as liquid water, where solvent response is broadly uncharted on these timescales. Ultimately, my goal is to understand how molecules preserve their "quantumness" over time in so complex environments.



Hugo Marroux

2023	ERC Starting Grant
2021–present	Part of the Attosecond Physics Group at LIDYL (CEA)
2019–2021(may)	Postdoctoral fellowship at EPFL in Lausanne
2017–2019(June)	Postdoctoral fellowship at the University of California, Berkeley
2014–2017	PhD at the University of Bristol

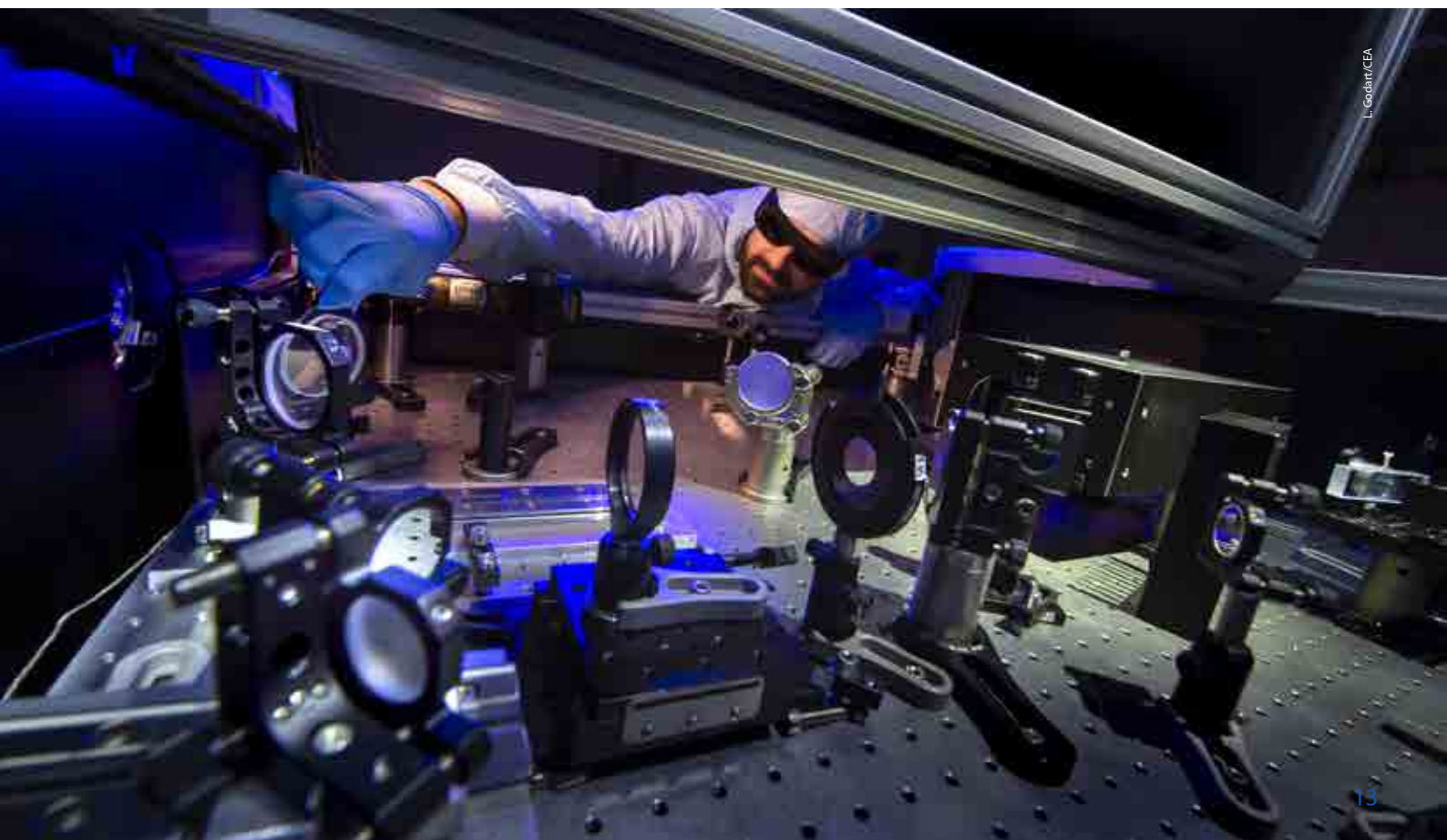
"Laserlab-Europe has allowed me to initiate and strengthen collaborations with colleagues bringing complementary expertise."

A major milestone in my career has been the award of an ERC Starting Grant, which supports my current project on attosecond processes in the liquid phase using nonlinear spectroscopy. This work pushes the boundaries of ultrafast science and opens new perspectives on quantum dynamics in condensed matter. This project is hosted at ATTOLab, the ultrafast laser laboratory of CEA, which provides the ideal environment for its successful completion.

Laserlab-Europe has played an important role in shaping my scientific journey. I have participated in numerous

experimental campaigns, both as a user and as a host, which allowed me to initiate and strengthen collaborations with colleagues bringing complementary expertise.

Beyond my current projects, I am particularly excited about recent developments in laser technology, especially post-compression in hollow capillaries in the anomalous regime. This approach enables unprecedented control over pulse duration and spectral bandwidth, opening new possibilities for pump-probe experiments at the shortest timescales."



"I am a PhD student at the Instituto Superior Técnico of Universidade de Lisboa, Portugal, working in the Laboratory of Intense Lasers (L2I). My main research focuses on the development of laser amplifiers based on CPA and OPA in the near and mid-infrared, driven by an industrial-class Yb laser. In addition, I contribute to other ongoing projects within the lab, including supporting and training new users/students/interns, developing diagnostic tools, and managing the laboratory's infrastructure.

My interest in physics was mostly driven by enjoyment, as it was consistently my preferred subject throughout middle and high school. As for my liking for optics, it might have started back in 2014 during a physics summer school, where I participated in a short project studying the effects of temperature and stress in optical fibers for the development of sensors.

My main project is the amplification of few-cycle 3 μm pulses. The goal is to increase the pulse energy from 65 μJ to 5 mJ to enhance the laboratory's capabilities in particle



Gonçalo Vaz

2022–present	PhD at Instituto Superior Técnico (IST), Universidade de Lisboa, Lisbon
2016–2021	Integrated MSc at Instituto Superior Técnico (IST), Universidade de Lisboa

“A grant from Laserlab-Europe led me to the decision to do my PhD with my current research group.”

acceleration, high-harmonic generation, and attosecond science.

After finishing my MSc, I was debating about my future path. I asked my supervisor about the possibility of doing a year of research in the group before making a decision. This was funded by a grant from Laserlab-Europe, which led me to the decision to do my PhD with my current research group.

In 2023, I was also awarded funding from the Laserlab-Europe staff exchange program. Thanks to this, I was able

to join the Artemis team from the Central Laser Facility in the United Kingdom, gaining further insight on how large-scale facilities manage user experiments, including scheduling, safety procedures, and hierarchy of controls. The knowledge gained from this visit was then implemented at L2I to improve its capabilities to receive multidisciplinary internal and external users.

Additionally, in 2024 I joined the local organising team of the Laserlab-Europe Conference in Lisbon, Portugal, which was a great experience.”

Dimitra Ladika

2025–present	Postdoctoral researcher at VU-LRC, Vilnius
2023–2025	Postdoctoral researcher at IESL-FORTH, Heraklion
2019–2023	PhD at IESL-FORTH and University of Crete, Heraklion



Vilnius University

“My interest in physics began during a lecture on laser physics in my undergraduate studies. While working on my bachelor’s thesis, I became particularly interested in how light-matter interactions can be used to study and control material properties. Laser radiation, with tunable parameters such as wavelength, repetition rate, and energy, offers a versatile tool for this purpose. Over the past eight years, my main focus has been nanoscale 3D printing via MPL.

I am currently a postdoctoral researcher at the Laser Research Centre (LRC), Faculty of Physics, Vilnius University. My work involves several projects related to multiphoton lithography, including the characterization of materials and their functionalization toward spectrally adaptive 3D nanostructures for nanophotonic applications.

I was recently awarded a Marie Skłodowska-Curie Actions (MSCA) Postdoctoral Fellowship, which provides opportunities for advanced training and collaboration with leading researchers. The project is based at VU-LRC

“A Laserlab-Europe funded visit initiated my collaboration with the Laser Research Centre in Vilnius and eventually led to my current position.”



Vilnius University

and includes collaborations with Swinburne University of Technology, Melbourne and CNRS, University of Bordeaux. The work will focus on advancing materials and fabrication strategies for nanoscale photonic structures.

During my PhD, I received funding from Laserlab-Europe for a two-week research visit to VU-LRC, where I conducted experiments in the group of Prof. Mangirdas Malinauskas and presented my work. This visit initiated my collaboration with the centre and eventually led to my current position in Vilnius.

More recently, through the RIANA project under the Laserlab-Europe framework, I visited Dr. Maria Farsari’s group at FORTH to continue collaborative work on materials for MPL. In both my previous and current roles, I have also hosted visiting researchers, which has helped expand my professional network and foster collaborations.”

RIANA: Single-technique-proposals now accepted



The hub for nanoscience and nanotechnology, RIANA (Research Infrastructure Access in Nanoscience & Nanotechnology), now accepts proposals utilising only a single infrastructure. The previous mandatory requirement to use at least two infrastructures is now optional, giving greater flexibility in designing a project.

Within RIANA, academic researchers can apply for free access to Europe's leading facilities in nanoscience and nanotechnology (69 in total) across 22 European countries. The facilities include synchrotron, electron microscopy, laser, ion beam, neutron, clean room, and soft

matter research infrastructures as well as high performance computing. The following Laserlab-Europe infrastructures offer access to laser-related techniques: CALT, CELIA, CLF, CLL, CLPU, CLUR, CUSBO, FELIX, FERMI, HiLASE, INFLPR, LENS, LIDYL, LLC, LP3, MUT, and ULF-FORTH.

For more information and submission of a (pre-)proposal, please visit:
<https://riana-project.eu>

Lasers4EU offers pre-project training to young scientists



Before the start of the actual access experiments, young scientists can arrange a visit to the host laboratory to receive hands-on training in using the equipment, experimental set-ups, data-acquisition systems and analysis methods for up to one week.

This early visit helps to build essential technical skills and shortens the learning curve for the rest of the team, boosting overall productivity. For this pre-project training, one person per

user group is eligible. The training request is submitted during the access proposal stage and should be confirmed by the facility during the feasibility check.

How to apply for transnational access (TNA) in Lasers4EU:
<https://lasers4.eu/become-a-user/how-to-access/>

Pre-project training:
<https://lasers4.eu/pre-project-training/>



How to apply for access

Interested researchers are invited to contact the Lasers4EU website at lasers4.eu/become-a-user/how-to-access/, where they find relevant information about the participating facilities and local contact points as well as details about the submission procedure. Applicants are encouraged to contact any of the facilities directly to obtain additional information and assistance in preparing a proposal.

Proposal submission is done fully electronically, using the Lasers4EU Proposal Management System. Your proposal should contain a brief description of the scientific background and rationale of your project, of its objectives and of the added value of the expected results as well as the experimental set-up, methods and diagnostics that will be used.

Incoming proposals will be examined by the infrastructure you have indicated as host institution for technical feasibility and for formal compliance with the EU regulations, and then forwarded to the Access Selection Panel (ASP) of Lasers4EU. The ASP sends the proposal to external referees, who will judge the scientific content of the project and report their judgement to the ASP. The ASP will then take a final decision. In case the proposal is accepted, the host institution will instruct the applicant about further procedures.

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