

See you
12th and 13th
February 2025

To continue inventing
the 21st century
together at Paris-Saclay!

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**PARIS —
— SACLAY
SUMMIT —**
CHOOSE SCIENCE

**PARIS-SACLAY SUMMIT:
A UNIQUE EVENT TO
EXPLORE THE ESSENTIALS
AND IMAGINE THE
FUTURE!**

Under the patronage of
Mr Emmanuel MACRON
President of the French Republic



PARIS-SACLAY SUMMIT
CHOOSE SCIENCE

INVENTER ENSEMBLE LE XXI^e SIÈCLE



“The creation and organization of this **major international event at Paris-Saclay** has two aims: **to elevate the profile of the world’s scientific contributions** in an unprecedented way, and to inaugurate a **new line of dialogue between scientists, decision-makers, and politicians.**”

Grégoire de Lasteyrie,
President of the Paris-Saclay agglomeration



“Faced with the new challenges of our century, France must once again become a major scientific power and **regain confidence in progress.** To achieve this, the relationship between science and society must be at the heart of the debate. **Building on the world renowned scientific strength of the Saclay plateau, “Choose Science” aims to restore science to its rightful place in public discourse.**”

Valérie Pécresse,
President of the Ile-de-France region



« The Paris-Saclay Summit is aimed at all science enthusiasts and members of the science and innovation community. Bringing together **scientists, inventors, citizens, students, politicians and entrepreneurs**, this summit aims to place science at the heart of our society and highlight its crucial role in meeting the challenges of tomorrow. **The Paris-Saclay Summit is a whirlwind of innovative ideas and discoveries** that position France and Paris-Saclay as major players in the field, between Shenzhen and Silicon Valley. **Come and write the future with us at the Paris-Saclay Summit !!** »

Renaud Grand-Clément and Etienne Gernelle
CEO of Le Point Editor of Le Point



“**Science is only worthwhile if it is shared, and this is the primary objective of the Paris-Saclay Summit.** We are at a time when our fellow citizens, particularly the younger generations, may doubt the beneficial effects of science and its ability to drive progress. This is a fundamental challenge for our societies, which is why we have an imperative to convince and share knowledge.”

François Durovray,
Minister delegate in charge of transport
President of the Essonne Department

A STORY BEING WRITTEN AT PARIS-SACLAY

21%
of industrial R&D activities in high-tech

305
laboratories specializing in key research areas for the future



Université Paris Saclay :
Ranked 2nd globally in Mathematics and 3rd in Physics by the Shanghai Rankings



Institut Polytechnique de Paris :
2nd leading university in France, and 3rd in the Times Higher Education World Rankings



“**Paris-Saclay stands as a key driver of innovation, a strategic imperative, and a center for scientific resurgence for our country**”

Grégoire de Lasteyrie

11
Fields medals

4
Nobel prizes

6
strategic economic segments

42
places of innovation

+ 500
startups

World-class center for innovation and scientific excellence

Paris-Saclay is an **exceptional area** that will house a quarter of France’s research by 2030. With a talent pool of more than 48,000 students and 15,000 researchers in key disciplines of the 21st century, the Paris-Saclay ecosystem is **one of the world’s top 8 innovation hubs** identified by MIT. It is addressing a major societal challenge: placing science back at the heart of progress, in service of the common good and the world of tomorrow.

MEETING THE MAJOR CHALLENGES OF THE 21ST CENTURY

Climate crisis, increasing resource scarcity, loss of biodiversity, growing inequalities, demographic growth, food transition, pandemics... The world is currently grappling with significant health, social, societal, and environmental challenges and transitions.

These challenges have been identified and assessed by the scientific community, which is working hard to diagnose the vulnerabilities we face and to provide answers and solutions to create the conditions for a sustainable and desirable future.

A multi-faceted and concerted response

“**There is no single miracle solution to these problems but it is a set of solutions that need to find a consensus within society...**”



Martin Vetterli,
President of the Ecole Polytechnique de Lausanne

While the issues are common, they manifest in various dimensions, necessitating the consideration of the unique perspectives and challenges faced by different stakeholders. The Paris-Saclay Summit is a **collective exploration of existing solutions, those in development, and those yet to be invented.**



Richard Frackowiak, the neuroscientist behind the “Human Brain Project”, and Hervé Chneiweiss, a neuroscientist and director of research at CNRS, presented the results of this European project. Launched 10 years ago, the project aims to enhance our understanding of brain function to provide better treatments for neurological and psychiatric illnesses.



Segenet Kelemu, an Ethiopian plant pathologist, and winner of the L’Oréal UNESCO Prize for Women in Science, is recognized for her research into developing new solutions for more ecologically responsible agricultural production adapted to climate change.

Global challenges requiring international mobilisation

Many scientific advances result from international cooperation, with the Intergovernmental Panel on Climate Change (IPCC) serving as a prime example. This culture of international collaboration has long been a strength within the scientific community, and it is even more crucial when addressing global issues that impact all countries and continents.

With contributions from renowned experts like François Gemenne, the Belgian co-author of the sixth IPCC report, who addresses the challenges of climate change in the aeronautical sector, and esteemed scientists such as Segenet Kelemu, an Ethiopian plant pathologist and a global authority in her field, along with presentations of results from international scientific projects like the “Human Brain Project” initiated 10 years ago by the European Commission, the **Paris-Saclay Summit is part of this ambition for international cooperation.**

BY BRINGING TOGETHER RESEARCHERS, DECISION-MAKERS AND STUDENTS

PROMOTING BRIDGES BETWEEN DISCIPLINES, APPROACHES AND CHALLENGES



Students from ESTACA were invited to debate with François Gemenne (political science researcher and co-author of the sixth IPCC report) and Amélie Lummaux (deputy CEO of the ADP group) at the round table "Air traffic and climate change: how to solve the equation?"



3 Nobel Prizes
105 speakers
400 students
2 650 visitors
19 000 online participants



"I believe it is vital to combine the hard sciences with the human sciences. Because many of the issues we face raise ethical and philosophical problems. The human sciences are in a position to enable citizens to form their own opinions about the challenges of the century"

François Durovray,
Minister delegate in charge of transport
President of the Essonne Department

Multi-partner and international approaches

When asked about the major advances being developed within his institution, Patrick Duvaut, President of the Fondation Paris-Saclay, emphasized the importance of a **multi-partner and interdisciplinary approach to finding solutions to the major challenges of the 21st century.**


Currently, three projects are being studied in partnership with UNESCO and the WHO, focusing on the digital transition, inclusive education, and access to healthcare for all. These are major priority areas for the Foundation, whose slogan says it all: **"Combining our differences, cultivating our excellence"**.

Shaping the future with young people

With two major national and international academic clusters in the region, the Paris-Saclay Summit is especially relevant to the world of higher education and students. Numerous challenges need to be addressed: adapting training and skills to the professions of tomorrow, making scientific careers and certain disciplines more attractive, and accommodating new aspirations, among others.

How do students and future students perceive, envision, and participate in major transitions? The event provides a platform for the new generations to engage in dialogue with scientists, political and economic decision-makers, and young people.

"Young people need to understand that they are not going to solve the world's problems against science [...] but by learning sciences and using them to solve problems."



Alain Aspect,
Nobel Prize in Physics 2022



Quarraisha Abdool Karim,
South African epidemiologist, Associate Scientific Director of the Centre for AIDS Research in South Africa



An honour and a privilege

"It is a true honor and privilege to participate in this summit alongside a team of scientists. There is nothing more important than being part of these conversations about how to use science to make the right decisions. Using science to understand epidemics is crucial."



Bringing people together to listen and discuss

"I think it's important to bring together in the same place, to listen and to discuss, students, researchers, retired people who are interested in developments in research, local councillors and local residents. I took part in a debate with Alain Aspect on the genesis of ideas and I think we were able to show that the practice of science is a source of jubilation. The joy of understanding!"



Etienne Klein, Physicist,
Director of Research at the CEA, Head of the Laboratory for Research into the Sciences of Matter



Science as a tool for democracy

"It's great to talk about science! To see all the people who came to the event. Putting science back at the heart of society, using science as a tool for democracy: I think these two days were a great example of that."



Sylvie Retailleau, Minister for Higher Education and Research



PROGRESS AND NEW DIRECTIONS: THEY TALKED ABOUT IT

Showcasing major scientific breakthroughs and promising research avenues will restore confidence in science. Highlighting inspiring career paths, the talents of tomorrow, and groundbreaking discoveries: **that's what the Paris Saclay Summit is all about!**



The discoveries that have helped curb aids

Lecture: *"A short history of the fight against AIDS, by one of its protagonists"*, with Quarraisha Abdool Karim, South African epidemiologist and Associate Scientific Director of the AIDS Research Centre in South Africa.

"The discovery of the virus and an understanding of how infection occurs led to the discovery of triple therapy in 1996. This transformed AIDS from an inevitably fatal disease into a transmissible disease like any other". Now, *"the pre-exposure prophylaxis allows you to avoid infection"*. A new, less restrictive type of treatment, involving a twice-yearly injection, is *"currently undergoing clinical research"*.



The epidemiologist's speech was a reminder of the close links between **science and politics** in the international treatment of the HIV virus. The advocacy work of civil society, combined with an international solidarity mechanism supported in part by governments, have made it possible to establish AIDS as a **major public health issue**.

The promises of the genomic revolution

Conference: *"Knowing the genomes of living organisms: Why do it?"* With Julia Joung, researcher at the Whitehead Institute of the Massachusetts Institute of Technology (MIT), named *"Innovator of the Year"* by the MIT Technology Review.

Julia Joung is researching gene modification in the human genome to produce various types of cells. The goal is twofold: to create cell models for understanding disease mechanisms and drug interactions, and to use these cells for therapeutic purposes, such as producing dopamine. Her research builds on the groundbreaking work of Emmanuelle Charpentier (France) and Jennifer Doudna (USA), who received the 2020 Nobel Prize in Chemistry.



Education is the most important thing



Dan Shechtman,
Israeli scientist, Nobel Prize
in Chemistry in 2011

"For all countries, the most important thing is education. Not everyone realizes this, but in every country, the future is in the hands of its teachers. Every need requires more engineers and scientists, the more the better."

Creating excitement about science

"Science is the ultimate freedom, you can do anything you want, the sky has no limits because there are other planets! The great thing is that we can give a voice back to those who no longer have one."

Nataliya Kosmyna,
Researcher at MIT,
specialising in brain-
machine interfaces





IA at the service of human beings

Conference: *“Crossed views”*, with Nataliya Kosmyna, Ph.D, Researcher at the Massachusetts Institute of Technology and Valérie Pécresse, President of the Île-de-France Region

Nataliya Kosmyna, a specialist in brain-machine interfaces, is developing glasses that capture electrical activity and eye movements to control objects. This device aims to enable individuals with sensory impairments or those in restricted environments to communicate. Specifically, it could allow disabled people or those suffering from Charcot’s disease to operate everyday objects such as ovens or televisions. Additionally, it has potential applications in professional and industrial settings, such as facilitating certain operations performed by astronauts.

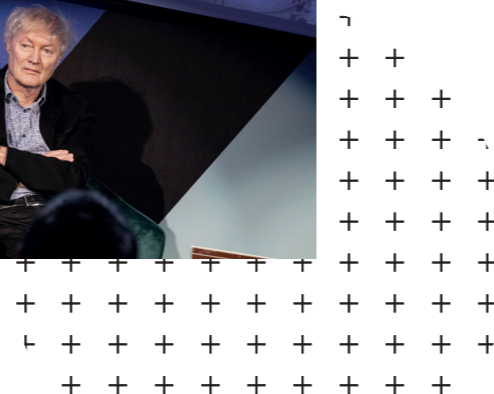
Decarbonising industry through chemistry

“ We founded Dioxycle with the idea of creating competitive chemical products that avoid CO₂ emissions ”

Michael Grätzel, renowned for the revolutionary solar cells named axer him, and David Wekerley, cofounder of the deeptech start-up Dioxycle, discussed the potential of chemistry in addressing the climate challenge. While the chemical industry still heavily depends on fossil fuels and petrochemicals, Dioxycle, founded by two young French and British scientists, offers breakthrough technology to decarbonize the industry. After five years of academic research at Cambridge, Stanford, and the Collège de France, they have developed a technology that produces decarbonized ethylene. This gas, widely used in the production of textile fibers, plastics, and construction materials, is created using electrolyzers that capture and recycle CO₂ emitted by industries that are still challenging to decarbonize.

Dioxycle raised €15 million last year to scale up and roll out the first industrial prototype, with marketing planned for 2026. **A great illustration of the concrete applications of our research!**

Conference: *“When chemistry addresses climate change”*, with David Wekerley, founder of Dioxycle and Michael Graetzel, professor at the École Polytechnique Fédérale de Lausanne.



Biodiversity to revisit the mechanisms of synthetic chemistry

“ Eco-catalysts have enabled us to revisit all the major mechanisms of synthetic chemistry ”

Claude Grison has demonstrated the potential to reconcile ecological imperatives with economic viability through an unprecedented discovery: the resilience of certain plants in highly polluted environments, such as former mining sites, and their ability to extract pollutants from the soil. Metals like zinc, which are becoming increasingly rare globally, are sequestered in the leaves of these plants, making them a valuable resource for the chemical industry and providing economic value. These ultrasilient plants serve a dual purpose: cleaning up soil pollution using natural solutions and revolutionizing chemistry by using these “plant catalysts” to break away from the polluting practices of conventional chemistry. The first applications of this innovation are seen in the production of medicines.



Conference: *“Nature-based solutions that are effective and economically viable”*, with Claude Grison, chemist, CNRS research director at the Bio-inspired Chemistry and Ecological Innovations Laboratory.

The fight against cancer: concrete advances and promising avenues



Conference: *“Will we be able to cure all cancers in the future?”*, with Fanny Jaulin, Inserm research director at the Institut Gustave Roussy, researcher in the Tumour Cell Dynamics laboratory and Sandra Oucher, vice-president of the World Education Heritage, expert in nanomedicine and immuno-oncology.

“100 years ago there was only one medicine. Today there are 220, demonstrating the phenomenal progress that has been made. There are also more than 3,000 molecules in clinical trials”. Referring to the emergence of targeted therapy, a major advance, Fanny Jaulin adds: *“In the case of lung cancer, the rate of survival has more than doubled in less than 10 years”*.

“Major scientific advances have led to the advent of immunotherapy, i.e. ways of strengthening patients’ immune systems to fight cancer. French researchers have been pioneers in this field. These advances have resulted in better treatments: monoclonal antibodies, gene therapy, molecular scissors. (...) and sometimes offer hope of a cure! This is the case with CAR-T cells, which fight cancer from within.”

Sandra Oucher

Making a success of the agro-ecological transition



Philippe Mauguin emphasized the essential role of researchers, alongside the agricultural sector, in finding **“paths of transition.”** The challenge of tomorrow is crucial: feeding an ever-growing population with increasingly limited resources. He outlined the three main levers for R&D: **genetics, bio-control, and robotics.**

Additionally, his speech highlighted **the need for collective involvement, given the scale of the necessary changes.** Citizens, through their behavior and choices, are agents of change. In the context of the agro-ecological transition, this will require a “willingness to pay more” to create sufficient demand for sustainable outlets in various future sectors, particularly legumes.

Conference: *“How can we feed a planet with a steadily growing population, against a backdrop of ever-present climate change?”*, with Philippe Mauguin, Director of INRAE.

SPREADING THE SCIENTIFIC CULTURE



Giving meaning back, starting at school

"We need to rethink the way we teach science. To give meaning, we need to show the applications [of science] in the fields of health, the environment, etc. (...). Give priority to "teaching through meaning and purpose".

Sylvie Retailleau

"There are few political decisions that are not based on scientific analysis. It's a pillar of democracy, and not to fight for scientific culture is to undermine democracy."

Alain Fischer
Doctor, Professor of Paediatric Immunology, President of the French Academy of Sciences



Inspiring people to dream

"We have to build dreams: that means working on culture and anthropology." Philippe Wahl

"As a young woman, what I found in practising science and mathematics (...) was a space for creativity and freedom (...) it was an escape" Laura Chaubard

"There has been a positive trend in the number of women enrolled in engineering courses, although we still need to do more: from 10% to 20% in 25 years, whereas 50 years ago the first woman engineer was admitted." Laura Chaubard

To promote a genuine scientific culture, Alain Fischer emphasizes the importance of imparting scientific knowledge from childhood onwards. He believes that schools are essential vehicles for knowledge and that it is vital for teachers to possess **sufficient scientific expertise** to ensure children grow up with a solid foundation in science.

Rémi Quirion, Chief Scientist of Quebec, adds to this analysis: "Having opportunities for culture and learning about science **throughout your life** is very important. There are different ways of doing this, **such as participatory science, which helps to demystify science. People want to learn.**"

Science and media

Delphine Ernotte, President of France Télévisions:

"The relationship with truth is central to information. We strive to make a clear distinction: a fact is a fact, not an opinion or an emotion. This is one of the essential missions of the public service."

To achieve this, it is necessary to develop the specialization of certain journalists in particularly complex technical issues. This is the purpose of the climate newsroom that has been established. By disseminating scientific culture, we can certify experts as legitimate voices on these subjects.



Encouraging vocations among young people



+400
students



25
PhD students



8
interactive scientific workshops



1
immersion in the EDF Lab innovation showroom

Exchanging and sharing ideas with scientists and inspiring young talent



Young people meet great scientists like Alain Aspect

"I was very interested to hear from individuals who are key players in this field and to learn about their visions through conferences that explain how to address the challenges of our world.",
said a student



Question and answer sessions with the speakers



Meetings between high school students and doctoral candidates

COMPANIES AND SCIENCE

The contribution of companies to scientific progress

Alhussein Fawzi discussed the ingredients behind the success of the company he founded, which specializes in AI and was acquired by Google.

DeepMind's success illustrates the ability of companies to mobilise their approach and know-how in research and innovation. The diversity of profiles and skills present within the company means that expertise and work cultures can be cross-fertilised.

He also looks at the **culture of risk** inherent in the business world, which in some cases has led to major scientific advances: *"One of the reasons for the success of Deepmind is down to our working methods and the way we structure our teams [...], we don't chase tight deadlines, our objective is to have a major impact, we concentrate on high-risk, high-reward projects, we don't mind if a project fails, we accept it".*

"Multidisciplinarity was a crucial aspect of the work... bringing together engineers and research scientists with different areas of specialisation around a table enabled us to produce this remarkable tool."



Alhussein Fawzi, Google DeepMind researcher named Inventor of the Year by MIT Technology Review

Corporate R&D at the service of major transformations

"So we need to move from materials to systems and from science to engineering!"

Marie-Luce Gaudinot took the floor to show **how science can generate solutions for the ecological transition of the construction sector**. She emphasized the importance of research in discovering more efficient, less carbon-intensive materials that capture CO₂. This was highlighted through the presentation of various practical applications of R&D work, such as the light-colored Végécol asphalt mix developed by Colas. This innovative asphalt mix uses a biosourced binder made from vegetable oil and pine resin, resulting in a carbon footprint reduction of at least 70% compared to traditional asphalt.



Marie-Luce Godinot, VP in charge of Innovation, Sustainable Development and Information Systems, Bouygues Group

Public and private: joining forces to meet major challenges

The Paris-Saclay Innovation Hub is characterised by virtuous and numerous collaborations between economic players and academic and institutional players through industrial research chairs, collaborative plakorms and institutes shared between the public and private sectors in cutting-edge fields.

The Paris-Saclay Summit is also an opportunity to celebrate these collaborations and to encourage new ones!

At the event, Data4, France's leading operator of data centers in the Paris-Saclay region, announced a partnership with the Fondation de l'Université Paris-Saclay as the sponsor of the Abiomas Innovation Chair. This Chair, initiated by the Département of Essonne and supported by the Agglomération Paris-Saclay, aims to boost innovation around augmented biomass, advance the circular and energy economy in the region, and achieve world firsts in these areas.

The scientific partnership will lead to the launch of a prototyping experiment to reuse some of the heat generated by a data centre, **a project that involves a multi-disciplinary, multi-skilled team of experts, researchers, start-ups, public authorities, etc.**

An event within an event

Meeting people you wouldn't have the chance to meet elsewhere, starting a discussion by greeting each other in a corridor, exchanging stories and best practices over dinner: that's also what the Paris Saclay Summit is all about!



SCIENCE AND DEMOCRACY



Ethics and transparency

In connection with her work on the human genome, Julia Joung spoke ahead of the event about the importance of **“communicating openly with the public to inform them about ongoing research”**.

In her view, *“ethical issues must always be addressed in parallel with scientific advances through **open dialogue**”* to maintain the public's trust.

“It's not AI that's good or bad, it's the choice we make about how we use it and the algorithms we develop”

Nicolas Sabouret

Governance and regulation

Invited to address the question, *“Politicians, industrialists, citizens: are we listening enough to the scientists in the fight against climate change?”* Martin Vetterli shared his perspective on the **necessity of a regulatory framework** for the ongoing changes. The President of the École Polytechnique Fédérale de Lausanne also advocated for **open access** as a means of preserving strategic technologies, thereby placing **“scientists at the service of society”**.

The support for scientific and technological advances was highlighted at the Paris-Saclay Summit as a means to enhance the acceptance of innovations and the transformations they may bring.

It is crucial to strike the right balance between establishing a framework that ensures these changes respect fundamental principles and rules, and maintaining the freedom and creativity inherent in innovation.

A sovereignty issue

“There is an exceptional pool of talent in France” for example in the life sciences and the humanities, the country has “a leadership that is just waiting to be revealed”. So it will be possible to create the future here in France, in line with “our system of values”



Valérie Pécresse,
President of the Île-de-France Region



The speech by **Thierry Breton**, European Commissioner for the Internal Market, served as a reminder of the importance of **action on a European scale in order to have an impact on the international stage**.

Thierry Breton referred in particular to the notion of **“standard-setting”**, i.e. the ability to define the next rules of the game. According to the European Commissioner, we need to create the conditions so that *“Europe can issue, before others do, **standards that will set the international benchmark.**”*

Promoting a European approach means ensuring that these benchmarks are consistent with the vision and core values of European democracies.



The European way to IA

The EU has created a common framework for artificial intelligence through the AI Act.

At the conference *“AI: Should We Be Afraid of the Ghost in the Machine?”* Nicolas Sabouret, Director of the Graduate School of Computing and Digital Sciences at the University of Paris-Saclay, and Alexei Grinbaum, Chairman of the CEA's Digital Ethics Steering Committee, discussed one of the solutions proposed in the AI Act: the use of watermarks for large-scale AI models. **This approach ensures universal access to AI tools while maintaining a clear distinction between AI-generated products and original documents.**

A European regulation that should enable to remain competitive

The experience of the founder of Dioxycle, a promising deeptech start-up, highlights the challenges and development strategies of innovation ecosystems that rely on regulatory frameworks. *“There are various mechanisms in place in the United States (EU) to help with decarbonization. At one time, it was the European Union that was leading the way on these technologies, but now the Inflation Reduction Act has been introduced in the USA: each tonne of CO₂ stored or reused gives tax breaks, so this system is interesting, and the EU is working on an equivalent to this system [...], in Europe the rules will be more precise on what is and isn't considered to be a decarbonisation method”*.