


# IUPAP and Physics outside Academia

**Christophe Rossel**
**IUPAP VP at large and Chair of SCPoA**
**IBM Research- Europe Zurich, Switzerland**

IUPAP

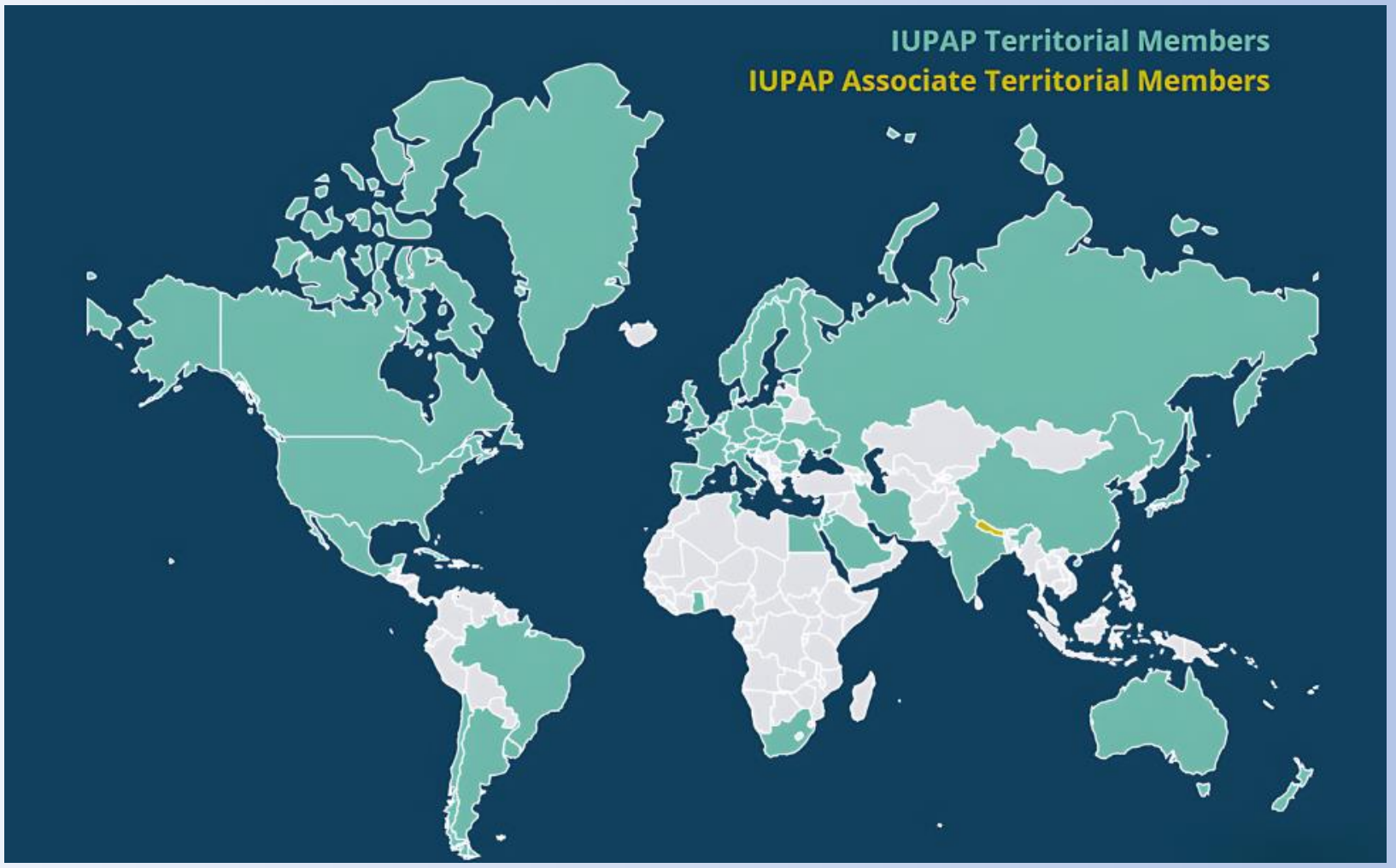
International Union of Pure and Applied Physics

- It is an international not-for-profit scientific organization, created in 1922
- It is neutral from a political and ideological viewpoint
- Headquarters at CERN in Geneva, secretarial office in Trieste

https://iupap.org/



# IUPAP membership: 52 countries



# IUPAP mission and goals

- Assist in the **worldwide development of physics** and promote physics as an essential tool for **development and sustainability**



- Engage in the strengthening and improvement of **physics education**, particularly in developing countries



- Increase **diversity and inclusion in physics**, enhancing the participation and recognition of women and of people from under-represented groups



- Foster **international cooperation** and sponsor suitable **international physics meetings.**



- Recognise outstanding contribution to physics via **award programs**

- Promote the **free circulation of scientists** and the open access to data



- Enhance the vital role of **early career** physicists



- Strengthen the **links with physicists working outside academia** and with other scientific communities



- Uphold **openness, honesty and integrity** in the practice, application and promotion of physics



- Promote **international agreements** on symbols, units, nomenclature and standards

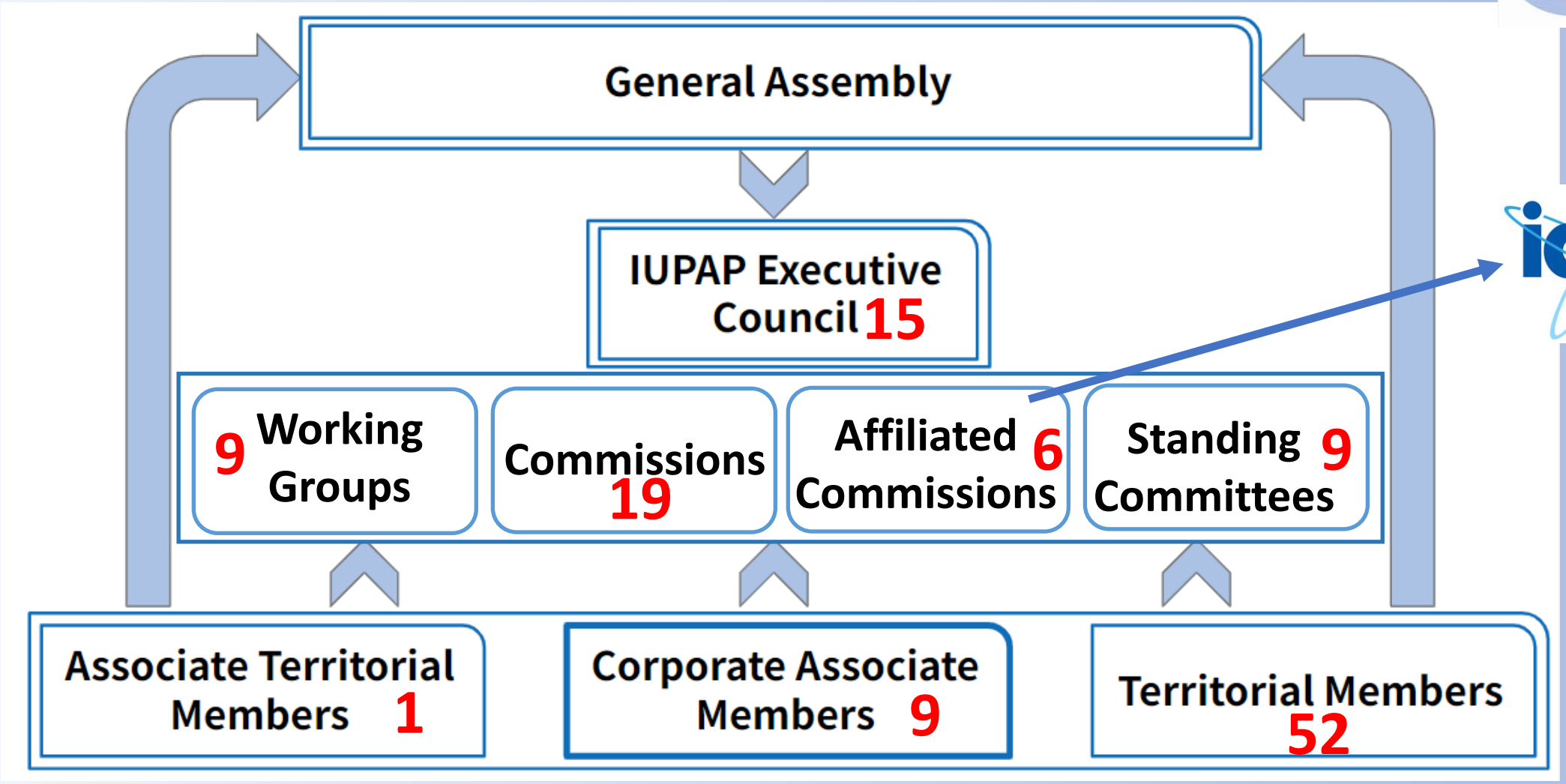


# Fields of Engagement




| | | | | | | |
|---|---|---|---|---|---|---|
| Symbols, Units, Nomenclature, Atomic Masses and Fundamental Constants | Statistical Physics | Astroparticle Physics | History and Philosophy of Physics | Low Temperature Physics | Biological Physics | Semiconductor Physics |
| Medical Physics | | | | | | Magnetism |
| Acoustics | | | | | | Structure and Dynamic of Condensed Matter |
| General Relativity and Gravitation | | | | | | Particles and Fields |
| Optics | | | | | | Nuclear Physics |
| Computational Physics | | | | | | Physics for Development |
| Astrophysics | Mathematical Physics | Laser Physics and Photonics | Physics Students | Plasma Physics | Atomic, Molecular and Optical Physics | Physics Education |

# IUPAP structure



# IUPAP Standing Committees (new since 2026)

## a) Standing Committees under Commissions:

International Committee on Future Accelerators, ICFA
International Committee on Ultrahigh Intensity Lasers, ICUIL
International Cooperation in Nuclear Physics, ICNP
Gravitational Wave International Committee, GWIC
Standing Committee on Major Neutron Research Facilities

## b) Standing Committees under Vice-President at Large:

Standing Committee on Membership and Development
Standing Committee on Physics outside Academia
Standing Committee on Diversity, Equality and Inclusion
Standing Committee on Ethics and Collegiality

# Standing Committee on“Physics outside Academia”

- **History**: 2020 July: first WG16 template draft with mandates and objectives
  2021: Submission of report with recommendations to 30th GA (Geneva)
  2022-24: continuation of WG16 approved by 31st GA (Trieste) and 32th GA (Geneva)
  **2026: new reorganization: WG16 becomes SCPoA as decided by GA of 31 Oct. 2025**

- **Members:** - 16 committee members from 10 countries

- **Mandate**: - **Provide recommendations to GA and Executive Council** on how to foster international **cooperation in physics between industry and academia (same as WG16)**

- **Objectives**: - **Acquire new Corporate Associate Members (CAMs)**
  - Co-organize international meetings, workshops, prizes with IUPAP Commissions and WGs
  - Provide resources of interest to industrial physicists and students interested in industrial careers
- **Actions:** - **Invite potential companies and organizations to become CAMs**
  - Develop a dedicated webpage outlining CAMs’ benefits & rights and providing specific resources

# Corporate Associate Membership (CAM)

## What are we looking for?

- **Commercial Companies** and national & international **Research Institutions**
- Related to the Field of Physics and Scientific Research
- Interested by the International Physics Community
- Looking for international collaboration and better visibility







# Corporate Associate Membership (CAM)

## What are the rights and benefits

- Make **nominations and hold positions** in IUPAP
- Connect with IUPAP commissions and working groups, submit R&D proposals
- Participate in IUPAP **conferences, workshops or commercial exhibits**
- Sponsor **prizes, awards, or focused initiatives** in their field of interest
- Access to **key stakeholders, industry insiders, and decision makers worldwide**
- Increased **visibility**
- Find a platform and resources on **benefits of physics to society and the economy, and its grand challenges**
- **Access to information and job posting sites, career guidance** for students, etc.

**Condition for membership** → **minimum fee unit: 2580 CHF/year**

# OUR 9 CAMs in 2026

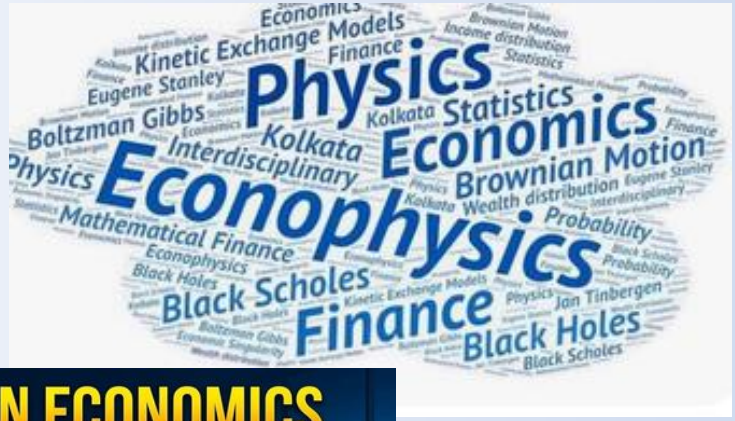
- ***ALLS:*** *Advanced Laser Light Source (Varenne, Canada 2022)*
- ***CERN****: European Organization for Nuclear Research (Geneva, Switzerland, 2022)*
- ***SESAME****: Synchrotron-Light for Experimental Science and Applications in the Middle East (Jordan, 2022)*
- ***JINR****: Joint Institute for Nuclear Research (Dubna, Russia, 2023)*
- ***PARK SYSTEMS Corp****.: Atomic Force Microscopy (Suwon, South Korea, 2023)*
- ***CAEN SpA:*** *Scientific Instrumentation (Viareggio, Italy, 2024)*
- ***SKAO****: the Square Kilometer Array Observatory (South Africa, Australia,2025)*
- ***IIM:*** *Innovations Investment Management India Private Ltd, Bangalore, India, 2025)*

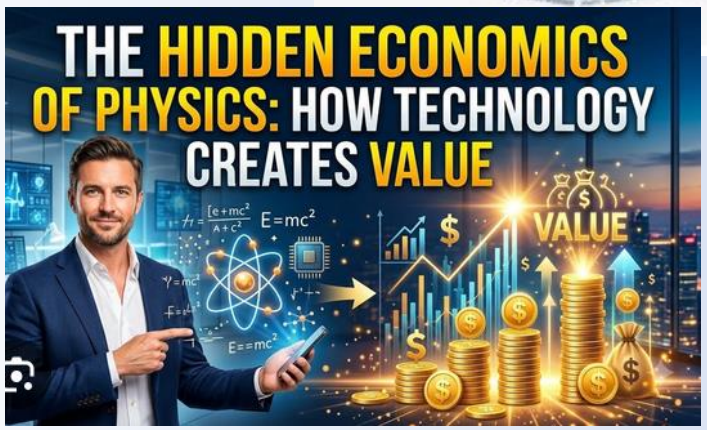
*Latest CAM:*

- ***CLAF*** *: Centro Latino-Americano de Física - The Latin American Center for Physics (Rio de Janeiro, Brasil, 2026)*

# Economic and social impact of physics




**Physics-based industry plays a major and strategic role on European Economy:**

- **Turnover: 7.07 trillion € (2022)**
- **Gross Value Added (GVA): 2.30 trillion € (2022)**
- **Employment : 20.1 million jobs**
- **Productivity of workers: 68% higher than EU average**
- **Investment in R&D: increased by 36.5 % since 2016**

**→ Investment in physics research and education translates into quantifiable benefits with skilled productive workforce**

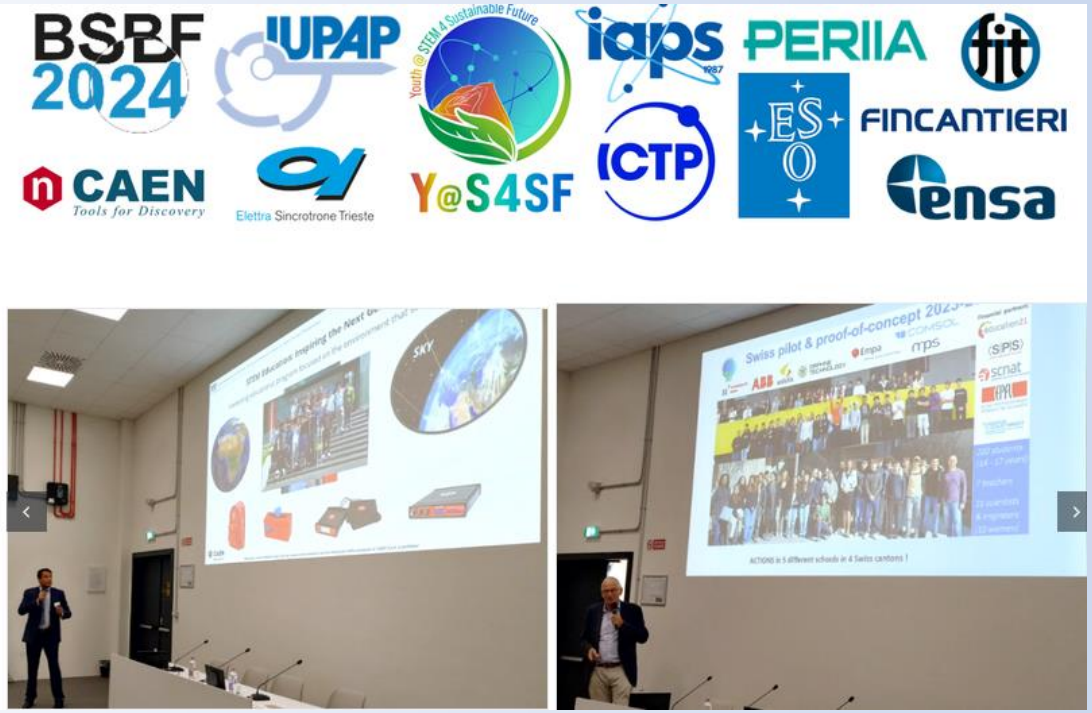
**→ Support future generations to work in these industries !**

Source: *EPS and Cebr report on Importance of Physics for the Economies in Europe (2025)*

# Special Projects of IUPAP SCPoA

## *Past activities 2024/2025*

- **1 Oct. 2024: BSBF 2024 IUPAP S4SF Satellite Event, Trieste**
  **"The role of Academia and Industry to inspire the next STEM generation "**
- Several actions at High school program connecting **science with society & sustainability** through interaction with **industry & scientific role models of both genders.**






# Special Projects of IUPAP SCPoA

## *Planned activities 2026/2027*

- **27 Oct. 2026: BSBF 2026 IUPAP S4SF Satellite Event, Maastricht (NL) "Attracting future workforce from schools and universities“**
- **Oct.-Dec. 2026:**

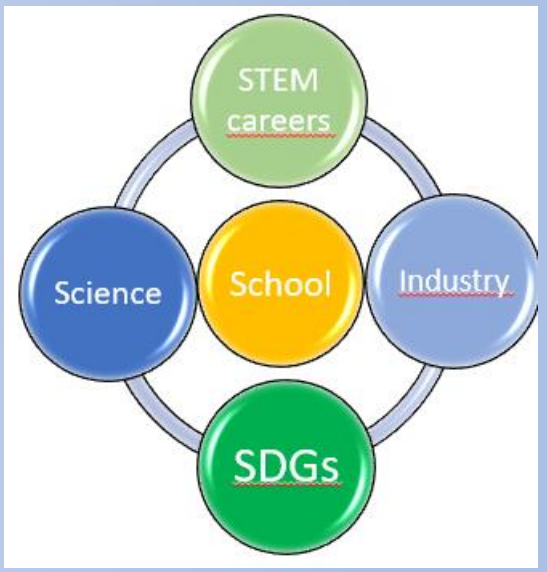
➢ Pilot program in Slovakia (www.s4sf.sk ) on “**AI for Sustainable Development**” in collaboration with S4SF, IUPAP and Slovak local companies.

➢ Webinar + co-creation Hackathon will result in the development of digital teaching tool using AI responsibly for sustainable energy use.

# *Youth at STEM for Sustainable Future: inspiring future society leaders!*




High school program connecting <u>science with society & sustainability</u> through interaction with <u>industry & scientific role models of both genders</u>.




- **Thematic inspirational days with industry visits**
- **Competition and Follow-up (co-creation Hackathons)**
- **New missing teaching resources co-creation**

**2023-2026:**
**600 students + 20 teachers + 40 role models**

**STRATEGIC LONG-TERM GOAL: To be embedded into (inter)national curricula**

# *Summary of results for 2023-2025*

- ✓ **30% of students, particularly girls, who did not STEM carriers, now seriously envisage them**
- ✓ **50%-80% of students feel responsible to become ambassadors of science-method and decisions in their future careers, including in non-scientific path.**
- ✓ **Students who wanted to study science (boys and girls), report increased confidence regarding physics-related career paths.**
- ✓ **3-5 times more students choose science activities / A-Level Physics at school (major increase for girls)**
- ✓ **30-60% more students, especially girls apply to science and tech universities**

# Thank you for your attention