



**HEP**Tech

YEARBOOK  
2017

**HEPTech**  
**High-Energy Physics Technology Transfer Network**

Edited by Eleonora Getsova  
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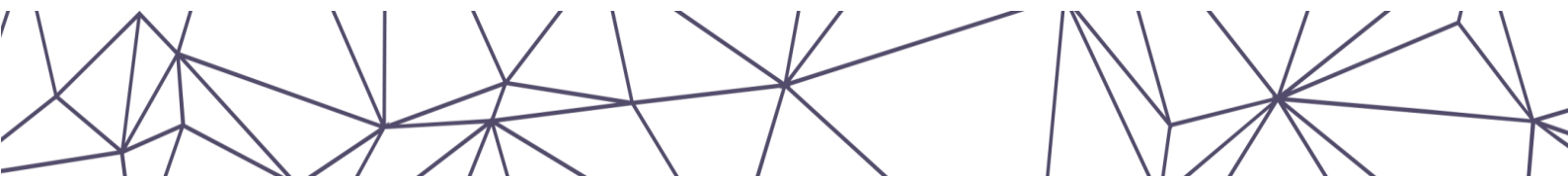
Contributions from represented individuals

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HEPTech acknowledges the contributions to this yearbook  
of the HEPTech members listed in page 22

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# INTRODUCTION NOTE

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**Jean-Marie Le Goff**

Chairman

A handwritten signature in black ink, appearing to read 'J. M. Le Goff', written over a horizontal line.

This was a challenging year for HEPTech. It was a year of consolidation and reflection on future trends of development while at the same time of challenges with Antonio leaving.

New ideas were born and discussed at Steering Committee meetings amongst the nodes. Green light was given to two Special Interest Groups (SIG). A SIG on Industry 4.0 kicked off with the organization of the first academia-industry matching event on this topic to explore the opportunities for and the potential impact on high-energy physics. It is scheduled for March 2018 and will be hosted by the Technical University of Kosice, Slovakia. I invite you all to attend this event as it may open new horizons for the Network. Another SIG focusing on Photonics was established at the end of the year and should develop in 2018. In addition, the Board approved an ambitious programme on nodes' capacity building that will be

implemented through a series of events in 2018 and beyond. I do believe this programme will be highly beneficial to all our HEPTech members.

To conclude 2017, a fantastic workshop on advanced licensing was held at CERN. Bernard Denis did a great job in showcasing the complexity of the Medipix case to the audience. No doubt that all our research infrastructures will benefit from this event.

The regular publications in the CERN Courier have further enhanced the visibility of the Network and the HEPTech newsletter is now widely accepted as a platform for sharing and exchanging information among the nodes.

Since challenges are perceived as a driving force for development, I look forward to continuing with a view to making HEPTech stronger and more efficient for all its members.





**Ian Tracey**

Secretary General

Another year is over and it is fantastic to have a new yearbook to share. It has of course, been a year of great change - while the UK has Brexit, our own Antonio has left HEPTech to further his career at a large Data Consultancy. Antonio has been essential in the running of HEPTech since I was first elected and we all wish him well in his new role. He has been replaced by Anna McCabe, as you may have noticed by now.

The Symposium continues to improve and this year we were hosted by GSI in Darmstadt in Germany. We had 20 participants from 11 countries. They were an active and thought-provoking bunch. Maybe it is a sign of me ageing, but they were able to party harder than me and still turn up bright eyed in the morning.

It has been a challenging year for the network from a funding point of view and we are on track to reduce our support from CERN. We did not win any more grants, alas, but we have managed to reduce costs from the previous year, partly because we reduced the network activity. I am aiming to increase the Network activity in 2018, by diverting some of our back-office costs into event activity.

Finally, I welcome Anna into the core management team and look forward to working with her over the coming year. I hope she finds it as much fun and an enjoyable challenge as Antonio said he did. I look forward to meeting you all at various events over the year.



# HEPTECH NETWORK OF CONTRIBUTORS

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# HEPTech Organisational Structure

## September 2017

### **HEPTech Coordination:**

Chairman of the Board: Jean-Marie Le Goff (CERN)

Secretary General: Ian Tracey (KTN)

Coordination Manager: Antonio Pacheco (KTN)

Communication Officer: Eleonora Getsova (Sofia University)

### **Workgroup on Accelerator Technology:**

Convener: Jean-Marie Le Goff (CERN)

### **Workgroup on Detector Technology:**

Convener: Andrea Vacchi (INFN)

### **Workgroup on Information and Computing Technology:**

Convener: Peter Levai (Wigner RCP)

Convener: Dan Enache (IFIN-HH)

### **Workgroup on Sharing of Best Practices:**

Convener: Bojil Dobrev (Sofia University)

### **Workgroup on Funding and Network Expansion:**

Convener: Ian Tracey (KTN)

Convener: Katja Kroschewski (DESY)

### **Communication and Marketing Task Force:**

Convener: Eleonora Getsova (Sofia University)







Gabriel Clerc



Andrea Crottini



Stephan Aune



Zsuzsanna Tandi



Peter Levai



Michele Barone



Ute Gunsenheimer



Allen Weeks



Aleš Hála



Liz Kirby



Delyth LLoyd



David Bereczkei



Ian Tracey



António Pacheco



Amalia Polydoropoulou



Bojil Dobrev



Eleonora Getsova



Katja Kroschewski



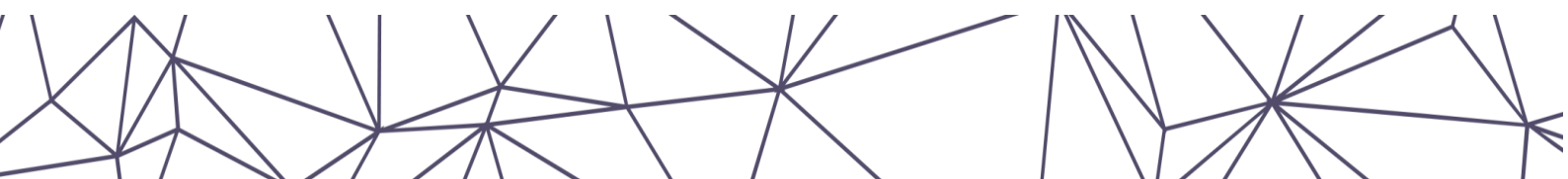
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Martina Bauer



Dan Dumitru Enache

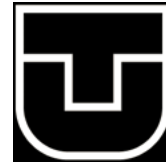




Christian Olivetto



Céline Tanguy



Jan Jadlovsky



Evangelos Gazis



Christina Kontogoulidou



Luis García-Tabares



Andrea Vacchi



Bruno Checcucci



Jerome Beaucour



Thierry Lagrange



Giovanni Anelli



Jean-Marie Le Goff



Maurizio Bona



Nick Ziogas

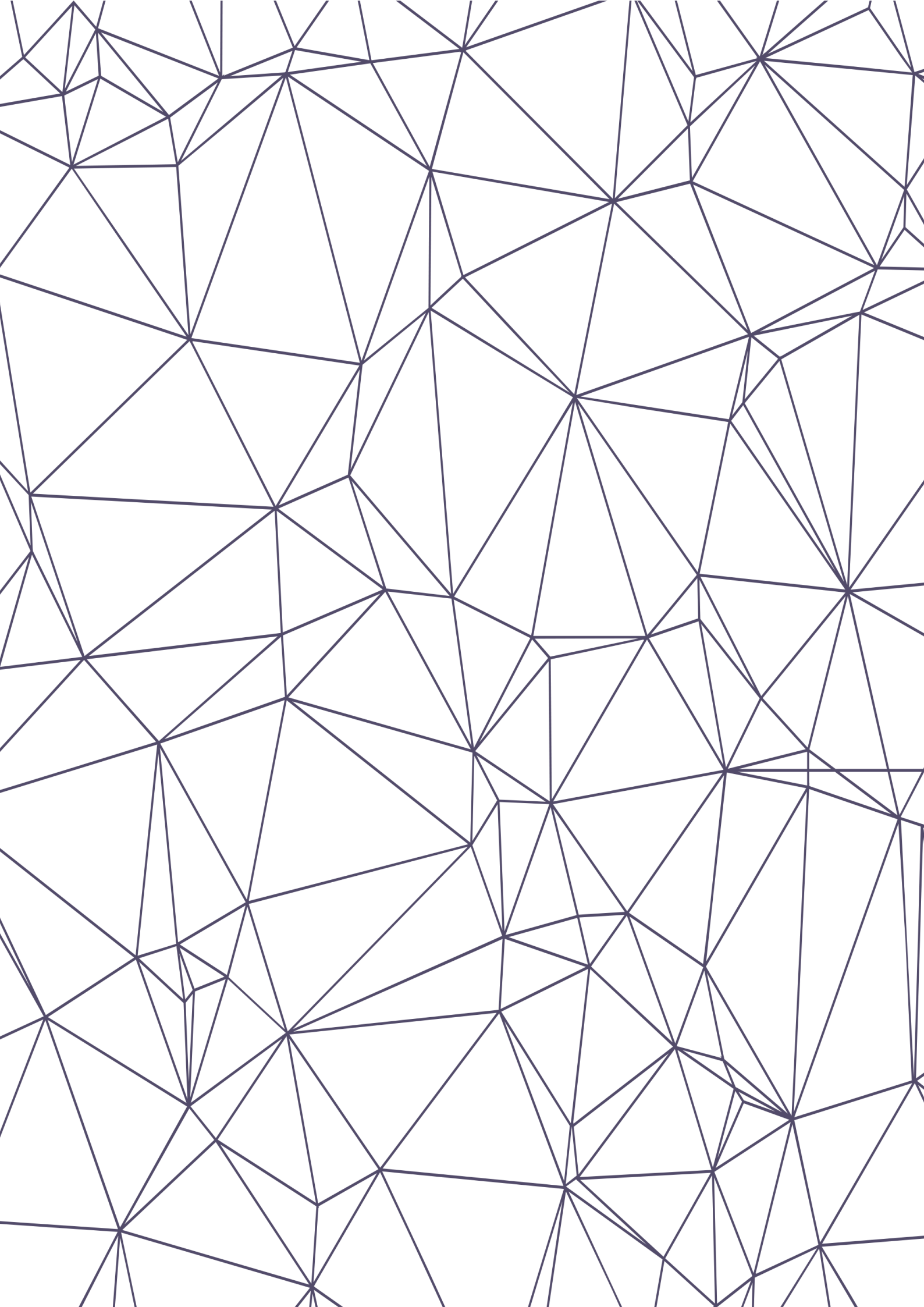


Emir Sirage



George Mikenberg





# HEPTECH EVENTS

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 December 2017 


ADVANCED TRAINING  
SESSION ON TECHNOLOGY  
LICENSING

2017



October 2017 

TECHNOLOGY TRANSFER  
PROGRAMME AT IEEE  
NSS/MIC

 September 2017 

ACADEMIA MEETS  
INDUSTRY IN THE  
EUROPEAN CRYOGENICS  
DAYS



June 2017 

HEPTECH SYMPOSIUM



# ACADEMIA MEETS INDUSTRY IN THE EUROPEAN CRYOGENICS DAYS

*Germany / 13 September 2017*



For a third consecutive year the Cryogenics Society of Europe organized the European Cryogenics Days 2017 in partnership with HEPTech. The event was held in Karlsruhe and focused on the challenges the cryogenics faces in the field of astrophysics, particle physics, computing, transportation, and power applications.

The European Southern Observatory, Germany and CEA (University Grenoble Alpes), France, revealed the specific requirements for sub-kelvin cooling in space and ground-based telescopes and emphasized the use of low-temperature detectors.

In terms of particle physics, CERN outlined the main cryogenic challenges to a possible future hadron-hadron collider (FCC-hh), while Fermi National Accelerator Laboratory, USA, focused on the main features of the cryogenic system of the Long-Baseline Neutrino Facility that supports the Deep Underground Neutrino Experiment (DUNE). The progress of the engineering of the target moderator cryogenic plant at the neutron spallation source facility of the European Spallation Source was also presented.

In terms of the further development of the information technologies and speeding up the processors, the University of Twente, Netherlands, introduced new computing paradigms - superconducting 'RSQF' circuitry and quantum computation. Both technologies require (ultra)-low temperatures, providing interesting challenges for cryogenic engineering.

The challenges cryogenics faces in transportation were illustrated by the University of Tokyo, Japan, that gave an update on maglev (magnetic levitation - a public transport technology that uses magnetic levitation to move vehicles without making contact with the ground or an electrical pickup) train system, currently being tested near Tokyo. Siemens AG - Corporate Technology - eAircraft, Munich, Germany, explored some opportunities of the high-temperature superconductivity as a key technology to produce a lightweight electric aircraft.

In terms of power applications, Karlsruhe Institute of Technology, Germany, introduced cooling requirements of superconducting power cables.

Industry demonstrated high interest by taking part in the exhibition and sponsoring the event.

# TECHNOLOGY TRANSFER PROGRAMME AT IEEE NSS/MIC

USA / 24 – 26 October 2017



CERN technologies with high TRL (Technology Readiness Level) were presented during the Technology Transfer Programme of the IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC) that took place in October 2017, in Atlanta, USA.

The programme was co-organised by HEP Tech, CERN and Siemens, in a poster format with scheduled pitches and was attended by more than 500 visitors for 3 days. According to the statistics, 54 people pre-registered to the pitches.

Ten posters were exhibited representing mature technologies originating from the USA, Canada and Europe. Seven of the posters visualised CERN's radiation detection, pixel detector and electronic technologies, as well as the Organisation's irradiation facilities and software developments. Scientists and industry representatives were surprised and impressed to discover that CERN had technologies with high TRL to offer.

The HEP Tech-associated National Institute for Subatomic Physics, Netherlands (Nikhef), presented their Topsy photomultiplier looking for industrial partners to further finance the development of commercially interesting devices based on this new technology.

"Industry checked on the availability of some of our technologies (ex. CERN's NINO) and had in-depth discussions with scientists on possible partnerships (ex. the Topsy technology with one of the leaders on SiPM)", says Jean-Marie Le Goff of CERN, the Chairman of HEP Tech, who was co-chairing the IEEE NSS/MIC 2017 poster sessions together with Charles Watson of Siemens.

Le Goff believes this was the best TTP he organised or attended since Lyon, France, in 2000, when the IEEE NSS/MIC forum moved for the first time to Europe on an annual rotation base. He considers the choice of the format and location of the TT event as particularly strategic for its success. "This year, me and Charles Watson, the 2017 Industrial Programme Chair, chose a poster format with scheduled pitches. The technology transfer posters surrounded by scientific posters were located next to the coffee-break area, just in front of the industrial exhibit. This ensured interactions with the exhibitors and with the academics attending the NSS and MIC poster sessions", comments Le Goff, explaining that the largest fraction of the technical presentations at this conference are posters.

The IEEE NSS/MIC forum is the main annual event for the detector and electronic community. It is held every year on a rotation base in USA, Europe and Asia-Pacific region attracting more than 1500 participants.

# ADVANCED TRAINING SESSION ON TECHNOLOGY LICENSING

*Switzerland / 05 December 2017*



HEPTech organized a Hands-on Advanced Training Session on Technology Licensing on 5<sup>th</sup> December 2017 at CERN. The event was designed for technology transfer professionals that already had initial training in intellectual property and technology licensing, or had at least one year experience working in technology transfer. It brought together 18 technology transfer professionals from seven HEPTech nodes.

The training was delivered by Bernard Denis, an experienced technology transfer professional of the Knowledge Transfer Group at CERN.

After the basic refresher session on the anatomy of a license aiming at a common understanding of the mechanisms and provisions covered by a technology license, the workshop developed around a real-life case study featuring Medipix family of technologies and followed the licensing history of these technologies between 2001 and 2010.

Medipix is a family of photon counting and particle tracking pixel detectors developed by an international collaboration, hosted by CERN. Several readout systems, hardware and software were developed by Medipix collaborations' members who were interested

in various application domains. Currently, Medipix has many commercial applications: material analysis, medical imaging and gamma camera, to name only a few.

Split into teams, the participants addressed several different real life licensing challenges met during the lifecycle of the technology case. They had to propose how to design new licenses or license amendments and how to address technology transfer concerns relating to large number of parties involved. Some challenges referred to the scope, type or field of exclusivity.

The situations were getting more complicated gradually as they were involving an increasing number of actors with different, sometimes conflicting interests. Various solutions to the challenges were discussed. Bernard, who actually led the commercialisation efforts of the Medipix technology, explained how the challenges were addressed in reality. The experience of his personal involvement in the whole process made the training sessions lively and exciting, and allowed interactive and practical learning.

At the end, the participants shared the lessons learnt over the day.



# SYMPOSIUM

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# HEPTECH SYMPOSIUM

Germany / 19 - 23 June 2017



(Photo: G. Otto, GSI)

For a fourth consecutive year HEPtech brought together early-stage researchers in high-energy physics and related scientific domains to help them transform their research ideas into marketable innovations. The symposium was hosted by GSI Helmholtzzentrum für Schwerionenforschung GmbH, in Darmstadt, Germany.

Twenty participants from 11 European countries met with entrepreneurs and experienced scientists, learning about technology-push, design-thinking, technology characterisation and value proposition.

Prominent speakers introduced delegates to the specifics of collaborations in physics, the management of large research projects and decision-making, in a scientific environment.

By exploring real cases, the long road from an innovation to a patent or licence and how to deal with intellectual-property rights, was made clear.



Basic requirements for public funding and some funding opportunities for start-ups were presented, in addition to tips about how to avoid unexpected traps entrepreneurs might face. Within the week-long event, the secrets of successful project management were discussed, and

the importance of appropriate staffing and negotiation techniques.

The entrepreneurship success story of Raspberry Pi revealed how developments in research are transformed into successful marketable products and how to develop a commercially sustainable product in a competitive environment.



A great challenge for the early stage researchers was to prepare short pitches presenting their research projects to an expert panel, with the aim of attracting investor attention.



In a guided tour, the young researchers were introduced to the facilities and research potential of GSI and future FAIR (Facility for Antiproton and Ion Research). They explored the unique in the world accelerator system for ion beams and admired the ion beam radiotherapy.

All topics were presented by experienced professionals, entrepreneurs and technology-transfer experts such as Markus Nordberg, Jean-Marie Le Goff (the Chairman of

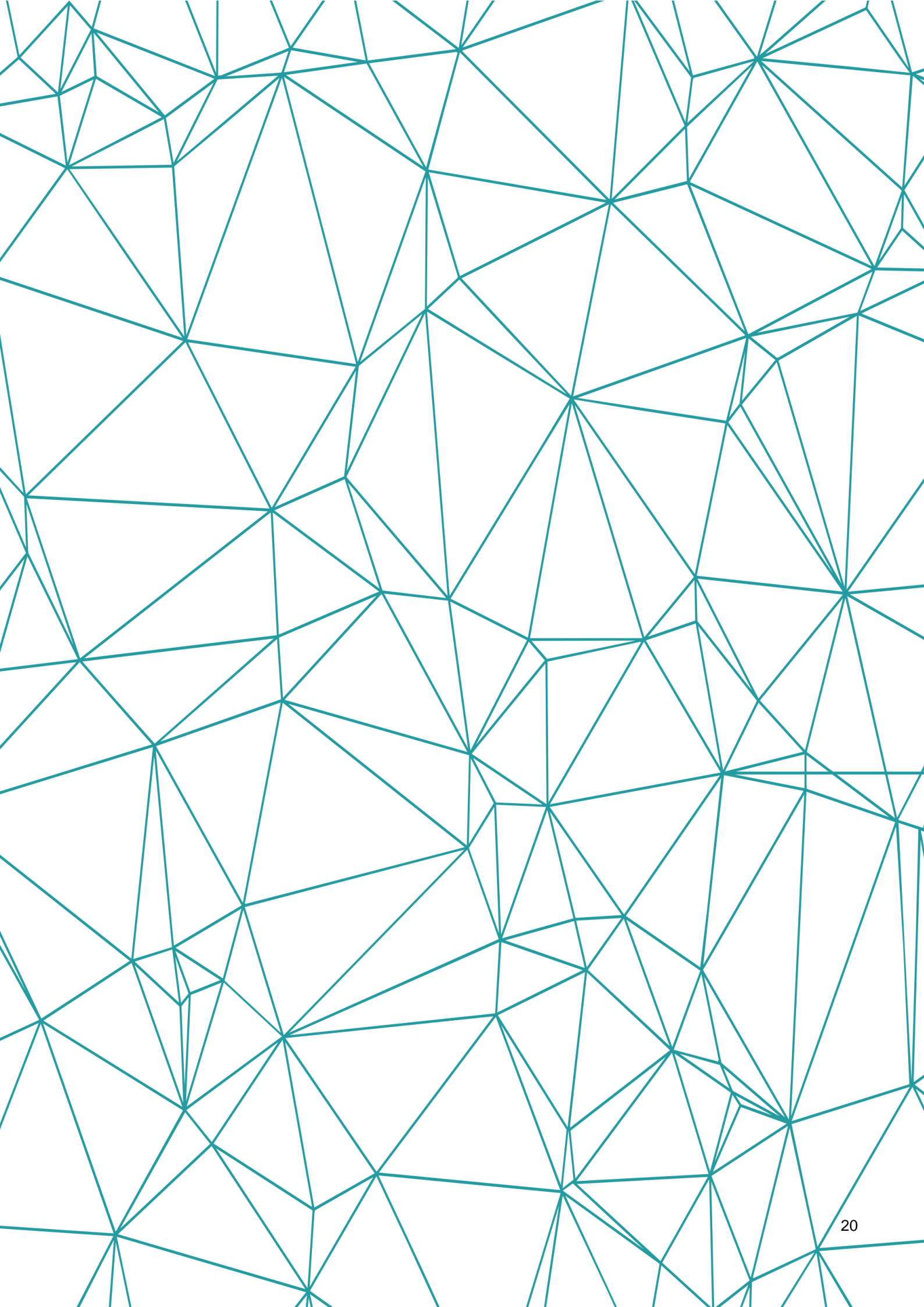
HEPTech) and Bernard Denis, of CERN; Ian Tracey (the HEPTech Secretary General) of KTN, UK; Pete Lomas, Co-creator and trustee of Raspberry Pi Foundation; Prof. Dr. Orestis Terzidis of Karlsruhe Institute of Technology, Germany; Adrian Stypka of Enterprise Europe Network/Hessen Trade and Invest; Dr. Ing. Thorsten Meiss of EvoSense GmbH, Germany; Dr. Janina Fengel of the University of Applied Science, Darmstadt; and Ion Padilla, founder of WeHike start-up, Switzerland. Symposium participants enjoyed the networking opportunities and discussed topics of their particular interest.

The social programme took the participants to an artists' colony in Darmstadt and to a famous cellar labyrinth located about 7 meters under the ground in Oppenheim am Rhein.



The early-stage researchers highly valued their experience and qualified it as “eye-opening”, “a unique opportunity”, “very insightful”, “expanding horizons”, “empowering” and “the most memorable conference with the largest impact” they have ever attended. Both participants and speakers highly appreciated the overall organization and logistics provided by the hosts from GSI.

Taking into consideration the excellent participants' feedback received for a fourth consecutive year, HEPTech will organize its next Symposium in June 2018, at ELI Attosecond Light Pulse Source (ELI-ALPS), in Szeged, Hungary.



# HEPTECH NODES

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# Nodes

1. Commissariat à l'Énergie Atomique et aux Énergies Alternatives (CEA)
2. European Organization for Nuclear Research (CERN)
3. Centre National de la Recherche Scientifique (CNRS/IN2P3)
4. Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT)
5. Demokritos National Centre for Scientific Research (Demokritos)
6. Deutsches Elektronen-Synchrotron (DESY)
7. ELI Attosecond Light Pulse Source (ELI ALPS)
8. Institute of Physics of the Academy of Sciences (ELI Beamlines)
9. École Polytechnique Fédérale de Lausanne (EPFL)
10. European Spallation Source (ESS)
11. Helmholtzzentrum für Schwerionenforschung (GSI)
12. Horia Hulubei National Institute of Physics and Nuclear Engineering (IFIN-HH)
13. Istituto Nazionale di Fisica Nucleare (INFN)
14. Institut Max LAUE – Paul LANGEVIN (ILL)
15. Knowledge Transfer Network (KTN)
16. Laboratório de Instrumentação e Física Experimental de Partículas (LIP)
17. National Technical University of Athens (NTUA)
18. Sofia University St. Kliment Ohridski
19. Science & Technology Facilities Council (STFC)
20. Technical University of Košice (TUKE)
21. University of the Aegean
22. Weizmann Institute of Science
23. Wigner Research Center for Physics (Wigner)



# 1. COMMISSARIAT À L'ÉNERGIE ATOMIQUE ET AUX ÉNERGIES ALTERNATIVES



CEA, France

The CEA is the French Commission for Alternative Energies and Atomic Energy (Commissariat à l'énergie atomique et aux énergies alternatives). It is a public body established in October 1945 by General de Gaulle.

A leader in research, development and innovation, the CEA mission statement has two main objectives: to become the leading technological research organization in Europe and to ensure that the nuclear deterrent remains effective in the future.

Within CEA, the activities of the Institute of Research into the Fundamental Laws of the Universe (IRFU) cover the fields of astrophysics, nuclear physics and particle physics.

IRFU's activities are focused on five thematic fields of physics: ultimate constituents of matter, energy content of the universe, structure formation in the universe, structure and evolution of celestial bodies, nuclear matter in extreme states.

Four other key topics cover the development of instruments and the transfer of IRFU's knowledge in the nuclear energy field to other communities:

## **Innovation for Detector Systems**

The activities carried out in this field are about development of detectors, computation and simulation, signal processing and real time systems.

## **Magnets and Accelerators**

These activities cover cryogenic test facilities, new developments for magnet and accelerator instrumentation, particle accelerators and super conducting magnets.

## **Physics for Nuclear Energy**

Basic research in nuclear physics paves the way for new developments in the field of nuclear energy. The teams at IRFU are providing CEA with basic nuclear data; they are also studying the possible transmutation of long-lived nuclear waste, and contributing to projects in nuclear fusion.

## **Expertise Working for Society**

Knowledge and technology developed for basic research prove to be useful in many other fields: dismantling of nuclear installations, development of sophisticated medical imaging tools and climate studies benefit today from the expertise at IRFU.





## STEPHAN AUNE

**Project leader on detection system CEA/IRFU**

**stephan.aune@cea.fr**

Stephan has 10 years (1993-2003) of experience on CDD camera for astrophysics /astroparticle physics. He worked on the following projects:

- Project EROS (mechanical & thermal engineer)
- Project Megacam (mechanical & thermal engineer, system engineer)
- He has 10 years (2000-2010) experience on micromegas detectors, while he worked as a project leader for several experiments

- Project leader of Piccolo micromegas (sealed micromegas detector for nuclear power plant in core neutron flux measurement)
- Project leader of CAST detector (low background micromegas detector for AXION search at CERN)
- Collaboration on various micromegas R&D for other projects.

Since 2008 he took several responsibilities:

- Project leader of CLAS12 tracker (low budget material curved micromegas vertex tracker)
- Responsible of the Saclay MPGD workshop (realisation of bulk micromegas R&D & prototypes) and member of RD51 collaboration
- Responsible for the Saclay micromegas bulk technology transfer to industry
- Deputy of the detector integration group (IRFU/LIDA) in Saclay

## 2. EUROPEAN ORGANISATION FOR NUCLEAR RESEARCH



*CERN, Switzerland*

CERN's Technology Transfer Office has developed a wide range of technology transfer opportunities, reflecting the needs of its partners and the principles of the organization. CERN provides access to its technical expertise and innovative technology for scientific and commercial purposes through a variety of technology transfer opportunities.

### **R&D Collaborations**

Collaborative R&D projects can be developed in CERN's areas of technical expertise, such as superconductivity to ultra-high vacuum, from detectors to ICT. CERN has a well-established tradition of collaboration with companies and research institutes, with the objective to generate technological results having a potential for commercial exploitation.

### **Service and Consultancy**

CERN's expertise and cutting edge infrastructures represent a unique opportunity for companies and academics in need of a specific high-tech service. Our

experts in the areas of technical excellence are available to provide professional advice or specific studies to business.

### **Spin-off Companies**

CERN encourages the creation of new companies based on CERN technologies in the Member States.

The creation of spin-off companies is also fostered through incubation centres: In April 2012 CERN and STFC (Science and Technology Facilities Council in the UK) announced the launch of a new Business Incubation Centre at the STFC's Daresbury Science and Innovation Campus.

### **Licensing**

CERN grants licences to commercial and academic partners for the exploitation of its technologies.

A selection of these technologies is available through CERN Easy Access IP, a royalty free license.





### THIERRY LAGRANGE

**Head of Industry, Procurement and Knowledge Transfer Department**

[thierry.lagrange@cern.ch](mailto:thierry.lagrange@cern.ch)

Since 2016 Thierry Lagrange has been appointed Head of Industry, Procurement and Knowledge Transfer Department and is responsible for the procurement of goods and services, knowledge transfer activities, sales and EU office at CERN.

#### Former positions

- CERN Department Head of Finance, Procurement and Knowledge Transfer (2009 - 2015)
- CERN CEO of the Pension Fund ad interim (2015)

- CERN Deputy Department Head of Finance, Purchasing and Industrial Services Group Leader, Industrial Services Manager (2004 - 2008)
- Management and supervision of all the purchasing activities of the Organization
- Alternate member of CERN Pension Fund
- Member of the Investment Committee
- Member of the Health Insurance Committee
- CERN Supplies Procurement & Logistics Division Leader (2002 - 2003)
- CERN Purchasing Service Head (1993 - 2001)

#### Education

- Master's degree in Financial Management VLEKHO, Brussels, (1982 – 1983)
- Degree in applied economic science RUCA, Antwerp, (1977-1982)



### GIOVANNI ANELLI

**Head of Knowledge Transfer Group at CERN**

[giovanni.aneli@cern.ch](mailto:giovanni.aneli@cern.ch)

Giovanni Anelli was appointed Head of the Knowledge Transfer Group in August 2011.

Giovanni joined CERN's Knowledge Transfer Group in 2010 as Technology Transfer Officer. Before he worked for three years for LEM SA, a company market leader in providing solutions for measuring electrical parameters, where he was managing projects on the design of Integrated Circuits (ICs) for current transducers to be used in industrial and automotive applications.

Prior to this, Giovanni worked for 10 years in CERN's Microelectronics Group (Physics Department), where he designed several low noise low power analog and mixed signal VLSI circuits for high-energy physics applications.

His research work also dealt with techniques to design radiation tolerant integrated circuits in deep submicron CMOS technologies, an approach which is now employed by the large majority of the integrated circuits of the Large Hadron Collider (LHC) at CERN.

Giovanni received a M.S. in Electronics Engineering from the Polytechnic of Milan (Italy) in 1997, a Ph.D. in Electronics Engineering (with honors) from the Polytechnic of Grenoble (France) in 2000 and an EMBA from HEC in Paris (France) in 2008. He is author and co-author of more than 70 publications and is an IEEE senior member.



## **JEAN-MARIE LE GOFF**

**HEPTech Chairman**

**jean-marie.legoff@cern.ch**

Jean-Marie Le Goff is a senior applied physicist at CERN where he has been working since 1988. He holds a PhD in particle physics and a DPhil in computer sciences.

At CERN he has been involved with the L3 experiment (LEP) where he was first in charge of the optimization of the muon spectrometer before taking responsibility for the general control system of the experiment RD-38, a DRDC project to lay the foundations of the control system middleware of the LHC experiments, resulting in

the transfer of the technology to a major paper manufacturer and utility company in Finland. He then worked on the electromagnetic calorimeter of the CMS experiment where he took charge of the team responsible for the software development dedicated to the tracking and assembly of the detector, which found applications in industry as Enterprise Resource Programming (ERP) software and Business Process Management (BPM).

From 2000-2008, Jean-Marie Le Goff was in charge of Technology Transfer. His active role in transferring CERN technologies to industry led to the evacuated solar collectors, now equipping Geneva's airport, the small animal PET system for drug discovery developed by the Cristal Clear Collaboration (CCC) and an ultra-compact cyclotron for PET isotopes production cases. During his mandate Jean-Marie Le Goff proposed to the CERN Council the creation of HEPTech.



## **NICK ZIOGAS**

**Technology Transfer Officer**

**nick.ziogas@cern.ch**

Nick joined the Knowledge Transfer group as a Technology Transfer Officer in September 2012.

He previously worked within the IT Service Management team, involved notably in problem and event management. While leading the User Support section of IT, Nick was responsible for the site-wide computing desktop support, the CERN IT Helpdesk and IT problem management.

Additionally, his responsibilities included the definition and negotiation of service level agreements with

services across the organization and the definition of the strategy for the implementation of a CERN wide printing policy for which he oversaw the operations management.

Prior to User Support, Nick was a systems analyst and developer within the IT Advanced Information Systems group, involved in the definition and development of web based applications like e-groups, CRA and e-payslip. From within the Administrative Support Department, he worked on workflow systems such as Remedy ARS and electronic data interchange systems, establishing data exchange partnerships with financial organizations and CERN suppliers. Prior to CERN, Nick worked for the Sandoz Institute for Medical Research in London on a software analysis package. Nick holds a BSc Honours degree in Physics from Imperial College of Science and Technology and an MSc in Computer Science from University College, London.





**DR. MAURIZIO BONA**

**Senior Advisor on Knowledge Transfer**

**CERN representative to HEPTech**

**Maurizio.Bona@cern.ch**

Maurizio Bona was born in Milan. He holds an Engineering degree (1979) and a Doctor's degree in Material science (1983) from Politecnico di Milano.

Starting in the mid-eighties, he participated in the design and development phases of the LHC superconducting magnets. In particular, he was in charge of the finite-element structural design of the main dipole, as well as of the development of some short-length prototypes by industry.

In 1993-95 he was also invited professor at the University of Genoa, teaching applied

superconductivity and superconducting magnets. Once the R&D phase of the LHC dipoles was concluded, he led the Technical Group (1998) and the Integrated Safety and Environment Group (2003) of the CERN Safety department. He then led the Safety department from June 2006 until the end of his mandate in December 2008.

From 2009 to 2015, he was the Advisor to the Director-General, responsible for the relations with international organizations. He contributed to the development of the CERN network of relations with other international organizations and to obtaining the status of Observer for CERN in the General Assembly of the United Nations (December 2012). From January to September 2016, he served as the Head of Relations with international organization.

As of October 2016, he is a Senior Advisor for relations with Parliaments and Science for policy, as well as Senior Advisor on knowledge transfer.

### 3. CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE



*CNRS, France*

Founded in 1939, The National Centre for Scientific Research (C.N.R.S.) is a public organization under the auspices of the French Ministry of Higher Education and Research.

It covers all scientific areas from humanities and social sciences, through chemistry and mathematics to earth sciences and astronomy, within its eleven institutes organized around their specific scientific field.

One of these institutes, the National Institute of Nuclear and Particle Physics (IN2P3), has the mission to promote and unify research activities in the fields of nuclear physics, particle and astroparticle physics.

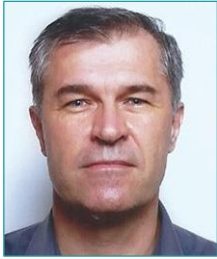
It coordinates programmes within these fields on behalf of the CNRS and universities, in partnership with CEA.

Whilst these main aspects represent the core of its activities, IN2P3 has also several additional commitments such as enabling other scientific domains to benefit from its competencies and solving certain problems posed by society, as well as assisting the universities by contributing to youth training.

Lastly, IN2P3 is in charge of offering to business the benefits of its expertise by providing industry with the technological resources that it has successfully expanded within the framework of its research activities.

IN2P3 has contributed to the design and development of large-scale research facilities which are used for telescopes, particle accelerator, detector systems, computers, etc.





### **CHRISTIAN OLIVETTO**

**Technical Deputy Director of  
CNRS/IN2P3**

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Christian Olivetto is an electronics engineer and project manager. His first assignment at CNRS was related to the design and commissioning of nuclear beam diagnostics on the European AGOR cyclotron. Throughout his career, he took design responsibilities for CERN experiments (ATLAS, CMS), nuclear physics accelerators (AGOR, SPIRAL2, ITER), astrophysical neutrino submarine experiment (ANTARES) and lastly -

on electronics design for TARANIS (CNES) and ATHENA (ESA) satellites.

Christian Olivetto had management responsibilities as Technical Director of Institut Pluridisciplinaire Hubert Curien laboratory (Strasbourg), and Astroparticle physics and Cosmology laboratory (Paris).

Since March 2016, Christian Olivetto is the Technical Deputy Director of CNRS/IN2P3. He is in charge of the management of projects and technical resources through a national coordination and strategic technical choices.

One of his responsibilities is to oversee and promote technology transfer in the 24 laboratories of IN2P3.



### **CÉLINE TANGUY**

**Technology Transfer Officer  
at CNRS/IN2P3**

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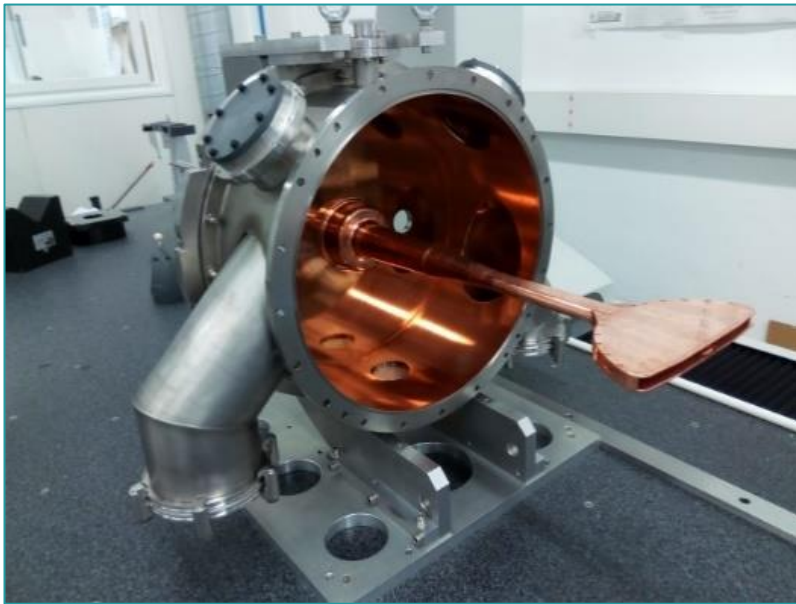
Céline Tanguy studied engineering and specialized in nuclear technology, safety and environment. She started her professional career at CEA Saclay/IRFU in 2011 working on the coordination of the EU TIARA

project, related to coordination of the accelerator R&D in Europe.

Since 2014, Celine has been working at CNRS/IN2P3 as a Technology Transfer Officer. Her responsibilities include coordination of the technology transfer (TT) at IN2P3, relying on and leading the network of TT officers in the IN2P3 laboratories.

In parallel, she is involved in the development of a multi-ion beam irradiation platform at CSNSM (IN2P3 lab in Orsay).

## 4. CENTRO DE INVESTIGACIONES ENERGÉTICAS, MEDIOAMBIENTALES Y TECNOLÓGICAS



**Ciemat** Centro de Investigaciones  
Energéticas, Medioambientales  
y Tecnológicas

*CIEMAT, Spain*

CIEMAT (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas) is a Spanish public research institution dependent on the Secretariat of State for Research, Development and Innovation of the Ministry of Economy, Industry and Competitiveness. Its activity is focused on basic research in specific areas and technologies related to energy and environment. It maintains a R&D&I programme in nuclear energy and ionizing radiation which makes it the depository of capabilities, knowledge and facilities unique in Spain, and ranks it as an institution of reference and support to government bodies in these matters.

It holds an intermediate position in the research activity chain that goes from creation of basic knowledge to its industrial application.

CIEMAT's portfolio of activities includes renewable energies, nuclear fission, particle physics, biomedicine, environmental research, ionizing radiation, scientific instrumentation and medical physics, materials analysis and characterization, computation, energy and environmental system studies. It is active in nuclear fusion (acting as the Spanish coordinator in the EUROfusion Consortium) and in concentrated solar

power. It hosts large facilities of the Spanish network of singular scientific-technical infrastructures related to these fields.

CIEMAT contributes to two specific areas of particle physics. On the one hand, it hosts a solid experimental physics group, which contributes to experiments in neutrino physics, astroparticles, and CMS-LHC, where it provides resources for detector instrumentation development, data analysis and computing. On the other hand, CIEMAT contributes to the development of accelerator components for large facilities and societal applications, in particular superconducting magnet components and related engineering. It has developed new components for facilities such as the European XFEL, IFMIF and generally, for the CERN programs CLIC, LHC, HL-LHC, and FCC.

CIEMAT has an Electrical Engineering Division that includes an Accelerator Technology Unit and a Power System Unit. The Electrical Engineering Division has organised two academia-industry matching events, both related to applications of superconductivity, including accelerators and gantries for radioisotope production or particle therapy.







**LUIS GARCÍA-TABARÉS**

**Head of Electrical Engineering  
Division**

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Luis García-Tabares is a Doctor in Electrical Engineering, working at CIEMAT since 2008. He is currently responsible for the Electrical Engineering Division, which incorporates the Accelerator Technology and the Power System Units.

Before joining the CIEMAT, he was working at CEDEX where in the early nineties he started the Applied Superconductivity Group - the seed that gave life to the present Electrical Engineering Division at CIEMAT.

Luis began his activity in the field of particle accelerators in 1989, when he spent a year at CERN working on the design of a superconducting quadrupole

magnet for the LHC. After returning to Spain, he created the Applied Superconductivity Group at CEDEX, which started as a joint group to CIEMAT in 1996 and was completely transferred to CIEMAT in 2008. It is currently involved with the development of a compact superconducting cyclotron for production of radio tracers. Over these years, Luis actively participated in the design, fabrication and testing of superconducting magnets, mainly for CERN, but also for other international collaborations.

Luis García-Tabarés has also been involved with energy and power systems, including electrical machines and power converters with specific applications to kinetic energy storage and energy production from sea-waves - two areas, in which the Power System Unit of CIEMAT has been working actively since 1999.

Finally, for about ten years he has been lecturing in dynamic behaviour of electrical machines, at the School of Electrical Engineering at the Universidad Pontificia de Comillas.

## 5. DEMOKRITOS NATIONAL CENTRE FOR SCIENTIFIC RESEARCH



*Demokritos, Greece*

Our mission is to further augment Research Excellence and to promote innovation and technology transfer.”

NCSR Demokritos, the largest multidisciplinary research centre of the country, hosts significant scientific research, technological development and educational activities, coordinated by eight institutes.

The centres with internationally distinguished scientific personnel utilise a number of unique Greek research infrastructures, working diligently towards scientific excellence, technological innovation and education.

Moreover, intensive efforts are directed towards the interconnection of technology and innovation.

Through the combination of effective research administration and scientific management, NCSR Demokritos promotes scientific research and technological development at a large scale and ranks among the top research centres in Greece and Europe.

In this manner, the scientific publications of scientists from NCSR Demokritos account for 35% of all publications produced by Greek research centres on an annual basis.





## **MICHELE BARONE**

**Industry Liaison Officer and  
Technology Transfer Officer for  
Greece at CERN**

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Michele Barone graduated in experimental physics at the University of Bari, Italy.

Following experimental work at CERN with the Division Group of Carlo Rubbia, he held teaching and research

positions in Switzerland, Italy (Universita di Perugia, INFN National Laboratory of Frascati) and Greece (Institute of Nuclear Physics at National Scientific Research Centre Demokritos and University of Athens).

His interest in experimental work led to managerial positions in international companies manufacturing systems for medical and scientific research. Dr. Barone is currently member of the Compact Muon Solenoid Collaboration and is acting as Industry Liaison Officer and Technology Transfer Officer for Greece at CERN.

He is author of some 150 papers and organizer of several international congresses and conferences.

## 6. DEUTSCHES ELEKTRONEN-SYNCHROTRON



*DESY, Germany*

DESY - Deutsches Elektronen-Synchrotron, is one of the world's leading accelerator centres and a member of the Helmholtz Association. DESY develops, builds and operates large particle accelerators used to investigate the structure of matter. DESY offers a broad research spectrum of international standing, focusing on three main areas: accelerator development, construction and operation; photon science; particle and astroparticle physics.

Thanks to its expertise and worldwide unique diversity of excellent light sources, DESY yearly attracts more than 3000 scientists from over 40 countries, and is a sought after partner in national and international

cooperations and projects. The DESY research programme is not restricted to the facilities at its two locations in Hamburg and Zeuthen. DESY is closely involved in a number of major international projects, including the X-ray Laser Project European XFEL in Hamburg and Schleswig Holstein, the Large Hadron Collider LHC in Geneva, the neutrino telescope IceCube at the South Pole and the International Linear Collider ILC.

Currently, DESY is planning an innovation centre on campus which serves as an incubator and is supported by the city of Hamburg. Young spin-off groups will be provided with workspace and a range of support there.





**KATJA KROSCHESKI**

**Head of Technology Transfer  
Office DESY**

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After having studied at IMS Stuttgart (Institute for Natural Language Processing) and UC Berkeley Katja Kroschewski received her diploma degree in Computational Linguistics in 1996 and joined directly the Institute for Natural Language Processing at the University of Stuttgart as a research assistant. She then switched to the Language Services of Daimler AG in 1997. There she was responsible for machine translation and translation memory projects between May 1997 and September 2003.

As she had moved to Hamburg with her family in 2001 she left Daimler AG in October 2003, when she became the executive director of CompCat Software und IT-Lösungen GmbH (CompCat Software and IT Solutions Co.) and kept working freelance for Daimler Chrysler.

In November 2007 she joined DESY as a team member of DESY's TT office, marketing synchrotron radiation and working for the EU ERID watch project. Within this project she carried out a case study on industrial usage of synchrotron radiation across Europe.

Since December 2009 Katja Kroschewski has been head of DESY's Technology Transfer Office, which is reaching out and inviting companies to share the benefits of basic research together. DESY's TTO is responsible for patenting, licensing, industry contracts, sponsoring, assistance for spin-offs as well as utilization and marketing of technologies and services.

## 7. ELI ATTOSECOND LIGHT PULSE SOURCE



*ELI ALPS, Hungary*

ELI Attosecond Light Pulse Source (ELI-ALPS, Szeged, Hungary) is the establishment of a unique attosecond facility that produces ultrashort pulsed light sources between THz (10<sup>12</sup> Hz) and X-ray (10<sup>18</sup> - 10<sup>19</sup> Hz) with high repetition rates for both developers and users.

The primary mission of the ELI-ALPS research facility is to make a wide range of ultrashort light sources accessible to the international scientific community with a special research focus upon coherent extreme-ultraviolet (XUV) and X-ray radiations and attosecond pulses.

The secondary purpose of the facility is to contribute to the necessary scientific and technological developments required for 200 PW peak intensity pulse generation.

The ELI-ALPS infrastructure will provide the users, in the fields of scientific research and industrial

applications, with primary laser pulses in conjunction with an impressive array of synchronized secondary light and particle pulses.

The outstanding characteristics of the source parameters include few-cycle pulses, from the terahertz/infrared up to the petahertz/ultraviolet, with an impressive 10 Hz to 100 kHz repetition rate; attosecond extreme-ultraviolet, soft and hard X-ray mJ pulses with a 10 Hz -100 kHz repetition rate; sub-femtosecond hard X-ray pulses upto 10 keV photon energy and controlled ultra-relativistic pulse shapes with ultra-high contrast with 1Hz repetition rate.

The overall coordination of the preparation and implementation of the project in Hungary is managed by ELI-HU Non-profit Ltd. – a beneficiary of the Structural Funds – financed project to build ELI-ALPS. It is also involved in other projects and has already two approved Horizon 2020 proposals.



**DAVID BEREZKEI**

**Project management  
coordinator**

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David Bereczkei graduated from the Corvinus University (Budapest, Hungary) as an Expert on international relations (major) and European studies (minor).

He also studied at the Nottingham Trent University in the UK as an exchange student. Forthcoming is his graduation from the Faculty of Law of the ELTE University.

He has been involved with EU-funded projects since 2008 - first at the National Development Agency and later at the Prime Minister's Office.

He joined ELI-ALPS in 2013 as project management coordinator.

## 8. INSTITUTE OF PHYSICS OF THE ACADEMY OF SCIENCES



*ELI Beamlines, Czech Republic*

ELI Beamlines is the Czech part of the Extreme Light Infrastructure (ELI) project, which is a part of the European roadmap of next generation major research facilities that have been identified by the European Strategic Forum for Research Infrastructures (ESFRI).

From 2018, ELI Beamlines will be a fully operational international research infrastructure based on an open access policy using cutting edge laser technologies to generate ultrashort light pulses with intensity up to 10 PW. The ELI Beamlines mission will be both fundamental academic research as well as applied research with direct societal impact.

The primary mission of the ELI Beamlines will consist of producing an entirely new generation of secondary sources driven by ultra-intense lasers. These secondary sources will produce pulses of radiation and particles such as flashes of XUV, X-rays and gamma-rays,

bunches of accelerated electrons, protons and ions, etc., exploitable as qualitatively new tools in many research disciplines and in the development of new technologies, namely material research and biotechnologies.

The research programmes (RP) of the ELI project are structured in the following way:

RP1: Lasers generating high repetition rate ultrashort pulses and multi-petawatt peak powers

RP2: X-ray sources driven by ultrashort laser pulses

RP3: Particle acceleration by lasers

RP4: Applications in molecular, biomedical and material sciences

RP5: Plasma and high energy density physics

RP6: Exotic physics and theory







## ALEŠ HÁLA

**Head of Centre for Innovation  
and Technology Transfer for  
projects ELI Beamlines &  
HiLASE**

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Aleš Hála joined the Institute of Physics at the Academy of Sciences of the Czech Republic (ELI Beamlines project) in July 2011.

He leads the ELI Beamlines technology transfer department, which helps researchers with technology transfer and commercialisation projects.

His major activities cover transferring scientific results to international industrial community, namely in development of new imaging methods, cancer treatment, material science and energetics.

## 9. ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE



*EPFL, Switzerland*

EPFL (École Polytechnique Fédérale de Lausanne) is one of two Swiss Federal Institutes of Technology. Like its sister institution, ETHZ, it has three missions: education, research and technology transfer at the highest international level.

Located on the shores of Lake Geneva, EPFL is Europe's most cosmopolitan technical university. It receives students, professors and staff from over 120 nationalities. With both a Swiss and international calling, it is therefore guided by a constant wish to open

up its missions of teaching, research and partnership impact to various circles: universities and engineering schools, developing and emerging countries, secondary schools and gymnasiums, industry and economy, political circles and the general public.

With over 350 laboratories and research groups on campus and its unique structure, EPFL fosters transdisciplinary research and promotes partnerships with other institutions and companies. It continuously combines fundamental research and engineering.





### GABRIEL CLERC

**Head of Technology Transfer  
Office, EPFL**

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Gabriel Clerc is a mechanical engineer of the Swiss Federal Institute of Technology in Lausanne (EPFL) with specialization in applied thermodynamics and turbo machinery. From 1978 to 1979 he worked as research and development engineer in the central R&D department of SULZER Co, Switzerland with activities in new products and systems in the fields of applied thermodynamics and materials. From 1979 to 1988 he was an experimental test pilot at the Swiss federal aircraft factory with numerous test flights and evaluations experiences mainly on fighter jets. He did one year of specialized training in this field in the US (USNTPS).

Since 1988 he was research contracts officer and licensing officer at EPFL. Since its creation in 1998, he has been a Head of TTO of EPFL and responsible for the TTO and Industrial Research Contracts Office of EPFL. During many years he contributed to the development of the Science Park on EPFL campus as well as to the Foundation for Technological Innovation (FIT) which supports financially early stage start-up projects with pre-seed loans.

Gabriel is a member of AUTM (Association of university technology managers, USA) and ASTP (Association of European science and technology transfer professionals) and co-founder and past president of the Swiss Technology Transfer association swiTT (association of Swiss Technology Transfer professionals working for universities, federal institutes of technology and public higher education and research institutions).



### ANDREA CROTTINI

**Technology Transfer  
Manager, EPFL**

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Andrea is technology transfer manager at the Technology Transfer Office of EPFL since 2011.

His main mission is licensing technologies in engineering and physics. Prior to that, Andrea worked in the field of optical sensors at IMT in Neuchâtel (CH), lasers and amplifiers at the Alcatel research centre in Marcoussis (F) and instrumentation for traces analysis in liquids at Hach-Lange (Danaher Corp.).

Andrea graduated in Physics from the University of Milan (I) in 1996, and obtained a PhD degree in optics and spectroscopy at EPFL in 2001.

## 10. EUROPEAN SPALLATION SOURCE



*ESS, Sweden/Denmark*

The European Spallation Source is a research infrastructure committed to the goal of building and operating the world leading facility for research using neutrons. The ESS will deliver a neutron peak brightness of at least 30 times greater than the current state-of-the-art, thus providing the much-desired transformative capabilities for interdisciplinary research in the physical and life sciences.

ESS officially became a European Research Infrastructure Consortium (ERIC) in October 2015. The facility is under construction in Lund (Sweden), while the ESS Data Management and Software Centre (DMSC) will be located in Copenhagen (Denmark). The foreseen milestones include the beginning of the first on-site accelerator installations (Sep 2016), facility ready for accelerator beam on the target (Dec 2019), the first call for users' proposals (2022), the machine installed for 2.0 GeV performance (Dec 2022), start user programme (2023), and the completion of the 16 construction phase instruments (Dec 2025).

ESS will be an attractive and environmentally sustainable large compound including industrial and laboratory buildings, office space and guest accommodation facilities all housed within a significant

architectural design that will make an impact on the world's stage. Before the expected world-scale scientific impact is realised with the operation phase, the construction of the ESS already has a direct economic impact by generating growth and jobs, advancing development and fueling innovation potential in the Öresund region and across the EU.

With ESS being built as a collaborative project, the growth effect will be shared between the host countries (Sweden and Denmark) and the ESS-ERIC partners.

The realisation of ESS enables access to frontier technology, experienced technical and scientific staff as well as unique production facilities and technologies, which would otherwise be unattainable.

In addition, the ESS will be a key instrument for addressing the Grand Challenges through novel insights on matter at the molecular and atomic level and applications to energy, carbon sequestration methods, health issues at biology level as well as drug development and delivery strategies, plant water-uptake processes of relevance for agriculture, novel data storage materials, and more.





### **UTE GUNSENHEIMER**

**HEPTech Representative of ESS**

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Ute Gunsenheimer joined ESS in November 2012 and is in charge of External Relations and EU Projects, which includes the collaboration with industrial stakeholders. In the past year the priority has been to raise awareness for ESS in the partner countries by organizing Partner and Industry Days, reaching a total audience of approximately one thousand participants.

In 2013 ESS established its Network of Industrial Liaison Offices which provides companies with a first point of contact in the ESS partner countries. For the time being this support is focused on facilitating business opportunities related to in-kind contributions and procurement activities at ESS.

ESS hosted the HEPTech “In-Kind Contribution Collaboration – A Challenging Partnership” workshop in January 2014 and Ute kick-started the HEPTech Communication Task Force.

Ute has several years of experience in managing large teams in business environments. She was Managing Director of a Berlin based international communication agency with clients from almost all of the different General Directorates of the European Commission, as well as other European institutions.



### **ALLEN WEEKS**

**HEPTech Representative of ESS**

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Allen Weeks is Head of Communications, External Relations & In-Kind at the European Spallation Source since 2012. From 2013-2014 he acted as Deputy Director of Administration. Mr. Weeks has more than 7 years of experience in the accelerator community and supporting industry.

Before joining ESS, he held various positions at Sincrotrone Trieste SCpA Consortium and International University/CIMBA in Italy, as well as at Johnson & Johnson SE Europe and Instrumentation Technologies in Slovenia.

Mr. Weeks is also experienced in working with European science policy. He advised the Slovenian government on strategy for participating in ESFRI Roadmap, including Slovenia’s participation to the Facility for Anti-proton and Ion Research (FAIR), with €15 mio in-kind contributions and a public-private consortium to deliver instrumentation and control systems. He organized a sustained PR campaign to build public support.

# 11. HELMHOLTZZENTRUM FÜR SCHWERIONENFORSCHUNG



*GSI, Germany*

GSI operates a worldwide unique large scale accelerator facility for heavy ions and currently employs about 1,100 people. In addition, approximately 1,000 researchers from universities and other research institutes around the world use the facility for their experiments.

GSI is a limited liability company (Ger. GmbH). Associates are the German Federal Government (90%), the State of Hessen (8%), the State of Rhineland Palatinate (1%) and the Free State of Thuringia (1%).

They are represented in the Board of Directors by the

Federal Ministry of Education and Research and the respective Ministries.

GSI is a member of the Helmholtz Association, Germany's largest research organisation.

The best known results are the discovery of six new chemical elements and the development of a new type of tumor therapy using ion beams.

Currently, the international accelerator centre called FAIR (Facility for Antiproton and Ion Research), one of the largest research projects in the world, is being built adjacent to GSI.





### **TOBIAS ENGERT**

**Head of Technology Transfer,  
Physicist, Engineer, Patent  
Engineer**

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Tobias Engert studied mechanical engineering with specialization on “Manufacturing and Process Technology” and holds a PhD in nuclear structure physics. Tobias has been working at GSI since 2003 and he started in the Nuclear Structure Research Department.

He was involved in a lot of developments and experiments with the spectrometers “Online Separator”, RISING and AGATA. Before GSI he worked for BMW, CORONET Kunststoffwerke GmbH and Freudenberg Vliesstoffe KG in the fields of services, plastic production and quality management.

During the time as researcher, Tobias was involved in a lot of R&D projects in the fields of radiation detection, mine verification and development of several medical devices. Furthermore, he is an expert in mechanics, surface and semiconductor physics.

After seven years in the research department of GSI he changed to the Technology Transfer Group and following, he led the strategic Human Resources Group with focus on HR management and consulting for the FAIR project.

In parallel to his work as Technology Transfer Manager, he studied National and International Patent Engineering in Berlin. Since 2013, he is in charge of the Technology Transfer Department covering innovation management, business development, technology marketing and GSI services. Furthermore, Tobias is CEO of a R&D company called GFE Gesellschaft für Forschungs und Entwicklungsservice GmbH.



### **MARTINA BAUER**

**Innovation Manager,  
Technology Transfer Group,  
GSI**

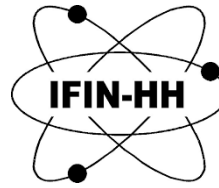
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Martina Bauer graduated in biology at the Technical University of Darmstadt. After that, she completed her PhD at the University of Medicine, Mainz, in the Institute of Toxicology in the area of cancer research with the main focus on molecular biology, immunology, cell biology, and radiation biology.

From 2013 to 2015 she worked as a technology scout for the Technology Transfer of the Heidelberg University Hospital. Her tasks were to identify, evaluate and support inventions and business ideas. As a member of the local founder network, she was also responsible for the support of start-up projects in the field of medicine.

Further, she was involved in the establishment of entrepreneurial education and in sensitisation of students and researchers in the field of innovation. Since 2015, she has been working as Innovation Manager in the Technology Transfer Group of GSI in Darmstadt.

## 12. “HORIA HULUBEI” NATIONAL INSTITUTE OF PHYSICS AND NUCLEAR ENGINEERING



*IFIN - HH, Romania*

The “Horia Hulubei” National Institute of Physics and Nuclear Engineering (IFIN-HH) is standing at the forefront of Romanian science both in terms of research infrastructures and research personnel, providing over 10% of the national scientific output.

Following the tradition initiated by the founder Professor Horia Hulubei, the IFIN-HH addresses a wide spectrum of research and development activities in fundamental and applied research areas including nuclear physics and astrophysics, particle physics, atomic physics, life and environmental physics, theoretical physics, nuclear techniques, and advanced communication systems.

The IFIN-HH has a staff of 688 employees, which include 307 R&D personnel, 235 PhD students and 21 PhD advisors. This makes the IFIN-HH fully compliant with the political, scientific and managerial requirements prevailing in the European space. To turn its strength to the best account, the institute concentrates its resources in two areas: (a) to steadily develop a sound in-house capability to get to and stay at the forefront of nuclear science and technology; and (b) to substantively participate in the European collaborative

endeavors centered on large scale facilities such as GSI-Darmstadt (Germany), GANIL-Caen (France), CERN (Geneva), and JINR (Dubna).

The IFIN-HH will continue to develop its infrastructure, manpower and expertise. Bringing bright young people at the frontiers of science and blending their enthusiasm with the experience and educated tenacity of the elders, is believed to be a sure recipe for the long term sustainability of the IFIN-HH activities.

In line with this, the IFIN-HH is leading the realization of the Extreme Light Infrastructure – Nuclear Physics (ELI-NP), the Romanian research centre part of the European distributed infrastructure ELI. This will be based on two main pieces of research equipment, a laser system that will produce two 10 PW beams and a gamma beam system that will produce highly collimated, high intensity gamma radiation with tunable energy up to 20 MeV. Using at the same time both high intensity gamma and laser beams, the materials behaviour in extreme radiation conditions will be studied.







## DAN DUMITRU ENACHE

**Head of the Center for  
Technology Transfer and  
Marketing**

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Mr. Dan Enache is the Head of the Center for Technology Transfer and Marketing at the Romanian National Institute for Physics and Nuclear Engineering in Magurele. Previously (2013-2014), Mr. Enache worked at the Central Administration of the Ministry of Economy as Secretary of State for SME's, Business Environment and Tourism. He has an extensive expertise in international foreign trade and economic relations being assigned a Minister Counselor for economic affairs at the Romanian Embassy in Washington DC (2001- 2005) and Economic Counsellor at the same embassy (1994- 1998).

Prior to his second assignment, Mr. Enache was

advisor to the Undersecretary for Commerce in the Ministry of Foreign Affairs as well as Director for North America, in the Division for Bilateral Relations with the Americas.

Mr. Enache began working at the Romanian Ministry of Commerce in 1986, starting at the Division for Africa and Middle East as a desk officer for Sudan and Egypt, responsible for the continuous growth of the bilateral trade exchanges between Romania and those countries. For three years (1990-1993), he had served as First Economic Secretary at the Embassy of Romania in Cairo, Egypt.

Before joining the Ministry of Commerce, he acquired a strong commercial expertise (1980-1986), dealing with foreign trade transactions of goods and services, as well as with investment projects in several Romanian foreign trade companies.

He holds a MS in Electronics from the Polytechnic Institute of Bucharest, a MBA in Economics and a PhD in International Business and Economics.

## 13. ISTITUTO NAZIONALE DI FISICA NUCLEARE



*INFN, Italy*

INFN is primarily a research community whose members work to discover the mechanisms and the fundamental components of matter. To do so, they invent and develop innovative technologies and make some of the most accurate measurements humanely possible.

INFN is a public research agency under the supervision of the Ministry of Education, Universities and Research (MIUR). It conducts theoretical and experimental research within a framework of international competition, in collaboration with universities. This requires the use of cutting edge technology and instruments developed by INFN at its own laboratories and in collaboration with industry. Today, INFN employs around 5,000 scientists whose work is recognised internationally not only for their contribution to various European laboratories, but also to numerous research centres worldwide.

### **Impact on society and economy – technology transfer**

Basic research needs innovative solutions using advanced technology that often exceeds the available industrial know how. That is why INFN develops technological research for use in advanced experiments, driven by the need to develop new methods of particle acceleration and detection or data acquisition and analysis.

These experiments represent a unique source of innovative technology in the field of superconductivity, electronics, precision mechanics, high performance networks, medical imaging diagnostics, nuclear particle beam therapy, techniques for use in the preservation of artistic heritage, etc. It is therefore natural that INFN should transfer the knowledge acquired during its research activities.

Transfer of technology is gradually becoming an established practice within INFN, also thanks to its new functional organisation. Over the years, INFN's technological research has had a multiple impact on many companies: from the size of their workforce to the ability to extend their product ranges and increase their engineering and production capacity.

Some businesses have been set up on the basis of ongoing relations with INFN. There are hundreds of cases in which INFN has been a source of stimulus and growth, even of employment, mainly among small and medium-sized enterprises, and has fostered the creation and success of leading companies. Although from a financial perspective the impact on large scale industry has been marginal, it has developed and activated production lines which have made a significant technological contribution.





### ANDREA VACCHI

**Director of Research at INFN**

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Andrea Vacchi is an experimental physicist coordinating a group active in space and accelerator physics experiments. He has an extensive experimental background in development and use of particle detectors. He has led the realization of the silicon tungsten tracking calorimeter, a key instrument for the satellite based spectrometer PAMELA successfully launched in June 2006, dedicated to antimatter search in cosmic rays with particular regards to the high energy component of antiprotons and positrons.

He has been active in the medical application of silicon detectors with particular regard to the problems of

screening in mammography with the development of high efficiency high contrast detector now on its path towards applications.

He is also a Chairman of the INFN Board for Basic Technology Developments "INFN-Commissione 5", where he had the opportunity to gather a rather complete view of all themes bound to front edge technology developments and applications.

As a member of the INFN executive board, he has followed besides other commitments, the activities caring for all aspects of R&D, technology transfer, intellectual property, spin-off creation and contact with industry. As a coordinator of the Technology Transfer Board of INFN, he is still dedicating a lot of attention to this demanding activity whose most important aspect is to bridge the distance between research motivated innovation and its applications in the entrepreneurial world.



### BRUNO CHECCUCCI

**Member of the INFN  
Technology Transfer National  
Board**

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Bruno Checcucci received his B.Sc. and Master degree in Computer Science from Perugia University, Italy. He is currently responsible for the Electronic Service Laboratory at the Italian National Institute of Nuclear Physics and Physics – Geology Department, Perugia University.

From 1997 to 2010, he was an Assistant Professor with the Computer Science Department, Perugia University. He is the author of two books and more than 100 articles.

His teaching and research interests focus on fiber-optic data acquisition systems, high-density low-noise electronics, computer data networks, protocols and medical data acquisition systems. Since 1992, he has been a Scientific Associate at the European Organization for Nuclear Research (CERN). At CERN, in the framework of the Compact Muon Solenoid (CMS) experiment, he has been responsible for the "Optohybrid" project and he is currently in charge of the "TELDES" project for the NA62 experiment. He is member of the INFN National Board for Technology Transfer and member of the Technical Program Committee of three international conferences.

Mr. Checcucci's awards include the CMS Award for CMS construction in March 2010.

## 14. INSTITUT MAX LAUE – PAUL LANGEVIN



ILL, France

(Photo: ILL)

The Institute Laue-Langevin is an international research centre founded on 19 January 1967 with the signing of an agreement between the governments of the French Republic and the Federal Republic of Germany. 50 years later, ILL is at the leading edge of neutron science and technology, providing the world's most intense neutron flux and state-of-the-art instrumentation for the academic and applied research.

The Institute is funded and managed by France, Germany and the United Kingdom, which officially became its third Associate member country in 1974. Each of these three countries contributes around 25% to the annual budget. The remaining funding is provided by 10 Scientific Members (Spain, Switzerland, Austria, Italy, the Czech Republic, Sweden, Belgium, Slovakia, Denmark, and Poland). Thus, ILL caters to more than 90% of the European neutron scattering community.

As a service institute, ILL makes its facilities and expertise available to visiting scientists. Every year, about 1400 researchers from over 40 countries visit it. More than 800 experiments selected by a scientific review committee are performed annually.

Research focuses primarily on fundamental science in a variety of fields, including condensed matter physics, chemistry, biology, nuclear physics and materials science. It results in around 650 publications per year.

In addition to academic research, 30% of the ILL's activities are directly linked to applications for various industries, such as automotive industry (lithium batteries, fuel cells for electric cars), aerospace (welded structures, new alloys) and healthcare (radiopharmaceuticals for the diagnosis and treatment of tumours). ILL is also a unique place in the world to probe the fundamental processes that help to explain how our universe came into being, why it looks the way it does today and how it can sustain life. It is hosting the STEREO experiment, which is being used in the search for a light sterile neutrino, currently a hot topic in neutrino physics due to the so-called gallium and reactor anomalies, in which fewer neutrinos than expected have been observed.

The institute is an exceptional centre of excellence, a fine example of successful co-operation in Europe and a prototype for the European Research Area.





## **JEROME BEAUCOUR**

**Head of mechanics and  
neutron distribution**

**Head of Industrial liaison  
office**

**beaucour@ill.fr**

After 15 years in aerospace, automotive and medical industries, Jérôme Beaucour joined the ILL in 2004 as head of Neutron Distribution and Instrument Mechanics. One of his major duties was to serve on the Millennium upgrade of the Institute, for the design and realisation of new ILL instruments and neutron distribution systems. He has led several major developments and recently the refurbishment of the neutron delivery systems and instruments of the experimental guide hall ILL22.

In 2012, he was given an additional mission as head of the Industrial Liaison Unit with the aim to develop the societal impact of the Institute toward industry. At the same time within the Institute for Research and Technology in Nanoelectronics (IRT Nanoelec, a 28-partner French-funded private-public initiative on nano/microelectronics), he was nominated as Director of the Characterisation programme joining industrial partners and research infrastructures to develop industry access to Grenoble's large scientific facilities.

In the frame of a collaborative agreement with IRT Nanoelec and the Grenoble –Alpes University, he lead the development of the D50 instrument of the ILL, a new facility for neutron imaging and reflectometry dedicated to industrial and academic research. Since 2014 he has been developing the Platform for Advanced Characterisation – Grenoble (PAC-G) of the IRTNanoelec in collaboration with ESRF, CEA/LETI and CNRS/LPSC ESRF, CEA/LETI: a new organisation offering innovative characterisation services to industry.

## 15. KNOWLEDGE TRANSFER NETWORK



*KTN, United Kingdom*

The KTN connects people, to speed up innovation, solve problems and find markets for new ideas.

Established in 2014 to foster better collaboration between science, creativity and business, KTN has specialist teams covering all sectors of the economy – from defence and aerospace to the creative industries, the built environment to biotechnology and robotics.

Working with large and small companies, government

agencies, research organisations, venture capitalists and private investors, KTN has built a unique network that helps people and companies dedicated to innovation reach their potential in the market place.

The KTN has helped thousands of businesses secure funding to drive innovation. And we support them through their business cycle to see that investment through to success.





### **IAN TRACEY**

**Head of Access to Funding and Finance, KTN**

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Ian is responsible for growing and developing the KTN's strategies for assisting innovative companies through the application and raising of finance be-it lending, grants, or equity based.

He is also keen to explore entrepreneurship and how it relates to innovation, what infrastructure needs to be in place to improve it.

Previously, Ian Tracey was responsible for External Technology Transfer, Incubation and Entrepreneurship

at STFC ([www.stfc.ac.uk](http://www.stfc.ac.uk)) where he created, managed and guided various STFC spinouts. These include TeraTech Components, Cella Energy, DSoFt, The lectrospinning Company Ltd and PowerPredict.

A firm believer in the value of entrepreneurship, Ian created the Harwell Oxford Technology Entrepreneur Forum in 2012 with the aim of making Harwell Oxford the technology entrepreneurial hub of the Oxfordshire and Thames Valley area.

Ian's early career and educational background is in information systems engineering. He was sponsored by BT Research Labs through university, predicting the future telecommunications products 15 - 25 years ahead. Research topics included using Virtual Reality to enhance team working. He made the first transatlantic Voice over IP call, the first public broadband line was his home and he helped the fashion industry have a better understanding of demographic centric body profiles.



### **ANTÓNIO PACHECO**

**HEPTech Coordination Manager**

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António de Valladares Pacheco works for the Knowledge Transfer Network (KTN) based in London as the HEPTech Coordination Manager. He coordinates the efforts of the Workgroups and relates the necessary links between all the activities of the Workgroups through the Network and with the Coordination.

António arrived at CERN when he joined CERN Knowledge Transfer Group in March 2012, as a part of the contribution of LIP to HEPTech, in collaboration with the Fundação de Ciência e Tecnologia, from Portugal. Working as both part of the Coordination of HEPTech and part of the KT Group, his responsibilities included management of

technology transfer cases within the framework of the Technology Transfer Office. During this first period, as part of the Coordination Team, his responsibilities covered a wide range of activities – from the administrative needs of the back-office all the way to the involvement with all of the Workgroups' activities, participating in the organisation of most of the events held in the past two years, and in writing of grant proposals.

António received his M.Sc. in Technological Physics Engineering at Instituto Superior Técnico of Universidade Técnica de Lisboa in 2011. He worked as a scholarship student in computational physics at Laboratório de Instrumentação e Física de Partículas (LIP) in the field of particle physics, with a thesis on the "Drell-Yan process simulation in hadronic interactions in the COMPASS experiment" at CERN, where he spent some time for shift and collaboration work. Working with GEANT3 and Pythia his work focused on the Monte Carlo simulation of the spectrometer for the future setup of the experiment and the analysis of the impact these changes would have on the future physics results.

## 16. LABORATÓRIO DE INSTRUMENTAÇÃO E FÍSICA EXPERIMENTAL DE PARTÍCULAS



*LIP, Portugal*

LIP is a scientific and technical association of public utility that has research in the fields of experimental high-energy physics and associated instrumentation. LIP's research domains have grown to encompass experimental high-energy physics and astroparticles, radiation detection instrumentation, data acquisition and data processing, advanced computing and applications to other fields, in particular medical physics.

The main research activities of the lab are developed in the framework of large collaborations at CERN and at

other international organizations and large facilities in Europe and elsewhere, such as ESA, SNOLAB, GSI, NASA, AUGER and LUX.

LIP is an "associated laboratory" assessed as "excellent" in three successive evaluations by international panels. In its three laboratories in Coimbra, Lisbon and Minho are working about 170 people, out of which 70 hold a PhD degree, and many are professors at the local universities.







**EMIR SIRAGE**

**Coordinator of the Technology Office**

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As Coordinator of the Technology Office of the Portuguese Foundation for Science and Technology (FCT), Emir Sirage is responsible for the coordination of a designated structure that integrates a number of programmes including international partnerships (MIT, CMU, UT Austin, Harvard Medical School and Fraunhofer Institute), industrial R&D (Eureka, Eurostars), industrial liaison (CERN, ESO, ESRF) and technology transfer (PTTI - Portuguese Technology Transfer Initiative).

Emir also serves as the European Commission Portuguese Delegate at the ERAC (European Research

Area Committee, formerly CREST) working group on Knowledge Transfer. ERAC is a strategic policy advisory body whose function is to assist the European Commission and the Council of the European Union in the sphere of research and technological development. The Knowledge Transfer Group follows issues regarding the intellectual property recommendations on the management of intellectual property in knowledge transfer activities.

Currently, he is appointed as the Industrial Liaison Officer of the FCT responsible for industrial relations to ensure on behalf of the Portuguese delegation a progressive and sustainable industrial return for Portugal by actively meeting with Portuguese companies in the various sectors of industry as well as with scientific organizations, such as CERN, ESO (European Southern Observatory) and ESRF (European Synchrotron Radiation Facility).

## 17. NATIONAL TECHNICAL UNIVERSITY OF ATHENS



*NTUA, Greece*

The National Technical University of Athens (NTUA) is the oldest and most prestigious educational institution of Greece in the field of technology and science, and has contributed significantly to the country's scientific, technical and economic development since its foundation in 1836.

NTUA is divided into nine academic Schools: eight for the engineering sciences, including architecture, and one for mathematics and physics.

The personnel of the nine Faculties include more than 700 academic staff, 140 scientific assistants and 260 administrative and technical staff. The nine NTUA Faculties, divided into 33 Departments, are: School of Civil Engineering, School of Mechanical Engineering, School of Electrical and Computing Engineering, School of Architecture Engineering, School of Chemical Engineering, School of Rural and Surveying Engineering, School of Mining Engineering and Metallurgy, School of Naval Architecture and Marine Engineering, School of Applied Mathematical and Physical Sciences.

All the NTUA Schools are awarding a five-year Engineering or Applied Scientist Diploma degree, MSc degree and PhD degree.

The scientific research in NTUA is funded by both public and private sectors, as well as by EU sources.

The NTUA Senate supervises the overall Institution's function in compliance with the state laws and Institution's internal regulations. It forms the Institution's educational and research policy, its strategic planning development, and reports on its regular activities. Moreover, it is in close cooperation with various Greek and foreign universities, as well as with other scientific and cultural institutions.

The Lavrion Technological & Cultural Park (LTCP), near by the temple of Poseidon, is a body of scientific research, education, business and culture. It was founded in 1992, as a result of an initiative undertaken by the NTUA. With its renovated facilities, the LTCP provides continuous support to research, education and technology. LTCP is essentially the Technology Park in Attica, which specializes in the key areas of modern applied technology, such as information technology, electronics, telecommunications, robotics, technology laser technology, environmental technology, energy, shipbuilding, and marine technology.





## EVANGELOS GAZIS

**Professor of experimental particle physics, Head of the Technology Transfer Office of the NTUA and Industry Liaison Officer for Greece at CERN**

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Evangelos Gazis is a professor of experimental particle physics at the School of Applied Mathematical and Physical Sciences, Physics Department, since 1982.

His positions, responsibilities and distinguished awards:

- 2014: Officier de Palmes Académique, Ministry of Education, Paris, France
- 2014-2015: CERN Scientific Associate
- 2011-2014: Chair of the NTUA Senate Committee of International and Bilateral Affairs

- 2009-2010: CERN Guest Professor, ATLAS Collaboration
- 2007-2008: CERN Scientific Associate and Visiting Professor at the University of Lund, Sweden
- 2005 - currently: IEEE-NSS-MIC Contributed Papers Referee

Professor Gazis participates in research in nuclear, particle and astroparticle physics; gas detector construction; accelerator R&D; detector control systems and medical applications in hadron therapy. He is author of more than 700 papers with 43 000 references and 11 text books for the NTUA students and is supervisor and external examiner of many PhD candidates.

Professor Gazis has created a Greek hub for the HEPTEch network in Greece with the involvement of the following institutions: NCSR Demokritos, Athens University of Economics & Business and University of Piraeus.



## DR. CHRISTINA KONTOGOULIDOU

**Communication Officer for the NTUA HEPTEch Office**

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Dr. Christina Kontogoulidou is Head of the International Relations Office and Project Manager for Structural Funds and European Centralized Projects at the University of Piraeus, Greece.

She has a PhD in Health Management and since 2008 is Senior Lecturer in Health Management and Health Economics at the Department of Business Administration, University of Piraeus.

Her positions, responsibilities:

- 2014 Dec: Member of the NTUA-HEPTEch team
- 2013 Erasmus Minister, EAEC (European Association Erasmus Coordinators)
- 2013 – present: Responsible for organizing the mobility of the consortium placement for higher education for 5 Greek universities (Piraeus, Pantion, Charokopion, NTUA, DUTH, TEI of Piraeus) and 3 municipalities in the region of Attica (Piraeus, Maroussi, Kalithea)
- 2004 – 2013 Bologna Expert, National Team.

## 18. SOFIA UNIVERSITY ST. KLIMENT OHRIDSKI



*Sofia University, Bulgaria*

Sofia University St. Kliment Ohridski is represented by the Scientific Research Centre with a TTO.

The Scientific Research Center (SRC) is the department responsible for administration and support of research and project activities on a contract basis.

Annually, the SRC administrates over 300 project contracts with a total value of about 10 Mio BGN. Projects are funded on a contract basis by the National Research Fund (30%), EC Programmes (25%) and by industry.

Over 500 researchers from the academic staff of Sofia University take part in these activities.

A structure of the Scientific Research Center is the Technology Transfer Office (established in 2008) acting as an interface between research and industry, stimulating establishment of spin-offs and development of entrepreneurial spirit among the researchers.

The TTO is a member of the HEPTech and ASTP Networks.

### **Activities of the Scientific Research Centre:**

- Provides administrative and financial services of projects;
- Performs project financial management and reporting;

- Provides support in project proposal development;
- Provides information about funding opportunities and events;
- Supports technology transfer;
- Provides consultancy in IPR issues;
- Performs training in commercialization of research results;
- Maintains web sites and data bases about projects and results;
- Produces information and promotional materials;
- Serves as a National Industry Liaison Office of CERN;
- Participates in international research and technology transfer networks.

### **Publications:**

- Electronic monthly newsletter (grants, funding sources, events, scientific publications);
- "HORIZONTI", online academic journal
- Yearbook of Research Projects;
- Sofia University Research Excellence (dedicated to 125th anniversary of Sofia University);
- Research at Sofia University (dedicated to 125th anniversary of Sofia University).





### **BOJIL DOBREV**

**Director of the Scientific  
Research Centre, Sofia  
University**

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Bojil Dobrev graduated from the Technical University of Sofia. He has 20 years' experience in IT research, development and management, and 15 years' experience in delivery and management of business education.

He has participated in several international projects including IST projects, such as EMunIS (2001-2003), where he had the role of the Regional Coordinator; e-Inclusion (2005); e-Business W@tch (2006); and Knowledge and Technology Transfer (2011), where he was a National Correspondent.

Bojil was also involved in the development of the e-Government Strategy in Bulgaria (2012).

Since 2009, he is the Director of the Scientific Research Centre (NIS) at Sofia University. Bojil is the author of more than 60 publications and of the book "Guidelines for e-Government" (2005).



### **ELEONORA GETSOVA**

**Head of the Information and  
Project Unit of the SRC**

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Eleonora Getsova has substantial experience in information and communication management, training and project work. She is involved in a large spectrum of publication activities at the SRC and in provision of relevant information to the research community at Sofia University.

Eleonora compiles and publishes a monthly bulletin

with funding opportunities for students and researchers, containing also events and publications.

Eleonora is the editor of the Yearbook of research projects at Sofia University. She designed and edited the Sofia University Research Excellence (a collection dedicated to the 125th anniversary of Sofia University) and the brochure Research at Sofia University.

She is also involved in project consulting of many R&D projects of Sofia University.

Since July 2012, she acts as an Industry Liaison Officer between CERN and Bulgarian industry at Sofia University.

Since January 2015, she is the HEPTech Communication Officer.

## 19. SCIENCE & TECHNOLOGY FACILITIES COUNCIL



*STFC, United Kingdom*

The Science and Technology Facilities Council (STFC) is one of Europe's largest multidisciplinary research organisations. Our vision is to maximise the impact of our knowledge, skills, facilities and resources for the benefit of the UK. Our research has impact across a wide number of areas including: energy, security, healthcare and environment.

Part of Research Councils UK, STFC is funded by the government to support world class science and technology by:

- Supporting researchers through grants, particularly in astronomy, particle physics, space science and nuclear physics;
- Providing access to world class scientific facilities in the UK at the Rutherford Appleton and Daresbury Laboratories, UK Astronomy Technology Centre and Chilbolton Observatory;

- Providing access to world class scientific facilities abroad, such as CERN, the Institute Laue Langevin (ILL), the European Synchrotron Radiation Facility and telescopes in Chile and Hawaii;
- Supporting scientific and technical expertise in the UK in areas ranging from microelectronics, alternative energy production and particle and nuclear physics, to space and ground based astronomy.

STFC's investment in science and engineering generates ideas and technologies with a broad social and economic impact. Researchers are encouraged to create new businesses based on their discoveries and STFC helps established companies use its research to improve their products and services.





**LIZ KIRBY**

**Deputy Head of Innovation,  
STFC**

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Liz is part of the Business and Innovation directorate at STFC working to increase the economic and societal impact from STFC's research, innovation and skills. Liz manages the team of Innovation Managers who are focused on developing STFC-owned intellectual property opportunities, developed in the STFC National

Laboratories, into commercial licenses and spin-out companies.

Liz has a degree in Chemistry and a DPhil in Physical Chemistry from the University of Oxford. She initially joined the commercial team in a start-up company spun-out of Oxford University, and built-up expertise in intellectual property management and IP strategy. Later Liz spent 7 years at the University of Reading as their IP/Legal Advisor.

In 2012 Liz joined STFC as Licensing Manager, based at the Rutherford Appleton Laboratory. Liz now forms part of the STFC innovation management team with responsibility for a portfolio of spin-out companies and licensing deals.



**DELYTH LLOYD**

**Business Development  
Manager – Business  
Incubation at STFC**

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Delyth is an experienced business development professional who joined the Science and Technology Facilities Council in October 2015 as a Business Development Manager within the business incubation team. Responsibilities include identifying, developing

and growing a pipeline of new businesses into STFC's Business Incubation facilities and programmes. She has specific responsibility for managing the STFC CERN Business Incubation Programme for young technology companies who are developing high-energy physics technologies for new applications.

Delyth graduated from the University of Cardiff with a degree in Business Studies and has over ten years' experience in business support and technology incubation, working initially on European funded initiatives to support the development and growth of businesses, followed by a period working within the academic and private sectors prior to joining STFC.

## 20. TECHNICAL UNIVERSITY OF KOŠICE



*TUKE, Slovakia*

Established in 1952, the Technical University of Košice (TUKE – <http://www.tuke.sk>) is a public university whose main aim is to provide eastern Slovakia with access to technological/economic education and research. The University not only meets a wide range of educational needs in the region of eastern Slovakia but also in a number of technological areas serves as the only center of science and research in central Europe.

Currently, the University is organized into nine faculties: Faculty of Mining, Ecology, Process Control and Geotechnology; Faculty of Metallurgy; Faculty of Mechanical Engineering; Faculty of Electrical Engineering and Informatics; Faculty of Civil Engineering; Faculty of Economics; Faculty of Manufacturing Technologies with a seat in Prešov; Faculty of Arts; and Faculty of Aeronautics. By offering a variety of study programs and innovative research areas, each faculty successfully meets the requirements of the region, industry and society.

The Faculty of Electrical Engineering and Informatics consists of 11 departments, one of which is the Department of Cybernetics and Artificial Intelligence.

Major research areas covered by the Department include modeling and control of dynamic physical systems, intelligent methods and algorithms, and employment of information and control systems in industry.

The University Centre for Innovation, Technology Transfer and Intellectual Property Protection was established to ensure cooperation with industry in the field of applied research.

As part of its internal logistics, the University science park TECHNICOM provides physical and functional infrastructure for areas such as information and communication technologies, electrical engineering, automation/control systems, mechanical, civil and environmental engineering. One of its goals is to promote, accelerate and facilitate the incubation process for the establishment of small and medium hi-tech start-up/spin-off companies generated within TECHNICOM research activities.

Since March 2015, the Technical University of Kosice is a full member of the ALICE Collaboration at CERN.







**ASSOC. PROF. ING. JAN  
JADLOVSKY , PHD**

**Team leader of the TUKE group  
in the ALICE Collaboration,  
Department of Cybernetics and  
Artificial Intelligence, Faculty  
of Electrical Engineering and  
Informatics**

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Ján Jadlovský studied technical cybernetics at the Faculty of Electrical Engineering, Technical University of Košice (TUKE). In 1994, he defended his habilitation thesis which focused on distributed control systems. Since then, he has worked as an associate professor at the Department of Electrical Engineering of FEEI, TUKE.

He has been involved in basic research related to distributed control systems and supervised a number of bachelor, master and dissertation theses in this area. Most importantly, he has contributed to the

development of a universal model workplace based on the five-level pyramid model of process control with a wide range of physical applications. Together with his team, he has developed and implemented a number of solutions for regional manufacturing companies using this model, in which his long-term goal of transferring research results into production was repeatedly achieved.

Assoc. Prof. Jadlovsky is currently involved in the development of the University Science Park Technicom at TUKE, where he is the principal investigator of the pilot project PP7 – “Center for Nondestructive Diagnostics of Technological Processes”, which focuses on control and diagnostics of technology projects using camera systems, laser technology, mobile and service robots. Since 2012, he has been involved in the ALICE experiment of CERN in cooperation with the Institute of Experimental Physics of the Slovak Academy of Sciences based in Košice. He is the Team leader of the TUKE research group within the ALICE collaboration.

## 21. UNIVERSITY OF THE AEGEAN



UAegean, Greece

*(Lesvos island campus, photo UAegean)*

The University of the Aegean (UAegean) was founded in 1984, as a network of “academic ports of studies and research” successfully established in six campuses spread across the Aegean Archipelago (the islands of Lemnos, Lesvos, Chios, Samos, Rhodes and Cyclades), which makes it a unique natural, cultural and human environment to experience.

Over the 33 years of its existence, the UAegean has evolved into an international research-oriented university offering 17 undergraduate (BA or BSc) and 62 MSc or MA postgraduate programmes in modern interdisciplinary thematic areas such as environment, communication systems, cultural informatics, shipping, logistics and transport, product design, food and nutritional sciences, education design and Mediterranean studies. Currently, it has 5 faculties and 17 departments.

The UAegean academic community incorporates 11 576 undergraduate students, 1 280 postgraduate students, 629 PhDs, 323 faculty members, 66 special scientific and 247 administrative personnel.

Its research areas cover societal challenges (culture, economy, society, geography, humanities), ICT research and innovation (mathematics, ICT, engineering), green and blue growth (food and nutrition,

environment, maritime research, shipping and transport).

Research funding sources are nationally funded programmes (48%), revenue from community services (32%) and EU-funded programmes (20%). The total funding for 2014-2016 amounted to 26.562.354 euro. Forty percent of it was allocated to R&D activities.

UAegean participates in two large Horizon 2020 projects and in the National Strategy for Research, Technological Development and Innovation (2014-2020) with 4 research infrastructures.

The University collaborates with business and administration from several economic sectors through the “Aegean Start-ups” – a business accelerator distributed among the six islands.

A Knowledge Technology Office was established in 1996, as part of the UAegean’s Research Unit. It is a mediator between the research staff of the university and non-academic environment (market and society) at regional, national, European and international level. Its mission is to facilitate and increase researchers’ participation in R&D projects and to promote innovation.





**PROF. AMALIA  
POLYDOROPOULOU**

**Vice-rector of Research,  
Development, Finance and  
Infrastructure**

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Dr. Amalia Polydoropoulou is professor at the University of the Aegean, vice-rector of research, development, finance and infrastructure and director of the Transportation and Decision Making Laboratory (TransDeM) at the Department of Shipping, Trade and Transport. She received her Diploma in Civil Engineering from the National Technical University of Athens, and a MSc. and PhD in Transportation Systems and Decision Sciences from the Massachusetts Institute of Technology (MIT). Her areas of research include transportation systems, transportation demand, market research, and econometrics.

Dr. Polydoropoulou has extensive experience on travel behavior modeling and forecasting techniques. Other

areas of interest include the adoption of ICTs on transport and their effects on the future transport system. She has also experience in studying the effects of social networks on decision making. Her current area of research includes the innovative transport modes and services (such as autonomous vehicles, mobility as a service, car-sharing and bike-sharing schemes etc.) and the adoption of new business models for passenger and freight transport.

She is a coordinator of the Intelligent Research Infrastructure for Shipping, Supply chain, Transport and Logistics in the context of the National Strategy for Research, Technological Development and Innovation (2014-2020) in the National Roadmap of Large-Scale Research Infrastructures.

Dr. Polydoropoulou has published 9 Book Chapters, more than 35 journal papers and 130 conference papers and presentations, while she has given numerous invited speeches around the world. She has 1773 citations, h-index 17, and i10-index 27.

## 22. WEIZMANN INSTITUTE OF SCIENCE



*Weizmann Institute of Science, Israel*

The Weizmann Institute of Science is one of the world's leading multidisciplinary research institutions. Hundreds of scientists, laboratory technicians and research students working on its lushly landscaped campus embark daily on fascinating journeys into the unknown, seeking to improve our understanding of nature and our place within it.

It is the spirit of inquiry so characteristic of human race, which guides the scientists. It is this spirit that propelled humans upward along the evolutionary ladder, helping them reach their utmost heights. It prompted humankind to pursue agriculture, learn to build lodgings, invent writing, harness electricity to power emerging technologies, observe distant galaxies, design drugs to combat various diseases, develop new materials and decipher the genetic code embedded in all the plants and animals on Earth.

The quest to maintain this increasing momentum compels Weizmann Institute scientists to seek out places that have not yet been reached by the human mind. What awaits us in these places? No one has the answer to this question. But one thing is certain – the journey fired by curiosity will lead onward to a better future.

Groundbreaking medical and technological applications that have emerged from basic research conducted by Weizmann Institute scientists include:

- Amniocentesis, a prenatal diagnostic test for the fetus
- Sophisticated laser systems for high precision diamond cutting
- A method for growing hybrid seeds that prevents the transmission of disease from one generation to the next and helps protect edible plants from pest
- Affinity chromatography, a key tool for purifying biological materials in the biotechnology industry
- Living polymerization, one of the most fundamental techniques of the modern polymer industry.

For solving the structure of the ribosome, the cell's protein factory, and revealing its means of action, the Institute's Prof. Ada Yonath was awarded a Nobel Prize in Chemistry. Her research should speed the development of antibiotic drugs that are more efficient, especially against antibiotic resistant strains.





## GEORGE MIKENBERG

Weizmann Institute of Science

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George was born in Argentina on 15th of July 1947. When he finished High School in Nicaragua in 1964, he started university studies at Hebrew University in Jerusalem (1965). In 1967 he moved to Chile, where he completed his Licenciata Degree at Pontifical Universidad Catolica de Chile (1969). Afterwards he completed his MSc and PhD at the Weizmann Institute (1974). During his Post-Doc at Fermilab (1974-1977) he measured the size of the  $\pi$ , K, P and their anti-particles; designed, constructed and commissioned the first particle detector using optical fibers. In 1997 he joined the Weizmann Institute staff and was sent to DESY in Hamburg (1997-1982), where he designed, constructed and commissioned the second calorimeter in the world using wavelength shifters and did the analysis to confirm the discovery of the gluon using neutral energy; measured the QED process  $e^+e^- \rightarrow \gamma\gamma$  to obtain limits in contact interactions.

George started an Israeli group (Tel-Aviv, Technion, Weizmann) participation in the OPAL experiment at the Large  $e^+e^-$  Collider (LEP at CERN) (1982-1996). He

developed the construction technique for a new type of gaseous detector (TGC) and was responsible for the construction, commissioning and running of the Hadron Pole Tip Calorimeter of the OPAL Experiment.

He was OPAL Experiment Physics Coordinator during the preparatory phase (1986-1989) and during the exploitation phase of the Experiment (1992-1994).

He drafted the first agreement with CERN for Israel to become the first Paying Observer Country to the CERN Council (1991). He became the Industrial Liaison Officer for Israel (1992-now) and managed to bring orders by CERN for Israeli high-tech products exceeding a total of 30M US\$. In 1992 he became a member of the High Energy Physics Division of the European Physical Society. He brought the large EPS conference to Jerusalem (1997); became the Secretary of the Division (1997-1999) and its Chair (1999-2001), introducing major changes to its conferences and prizes.

In 1994 George started the Israeli Collaboration that participates in the ATLAS Experiment at Large Hadron Collider at CERN. He coordinated the construction of the MUON Trigger System. From 1999 to 2008 he was the Project Leader of the ATLAS MUON Spectrometer. During 2003-2011 he has been a member of the Restricted European Committee for Future Accelerators that evaluates the HEP situation in all European Countries.

## 23. WIGNER RESEARCH CENTER FOR PHYSICS



*Wigner RCP, Hungary*

The Wigner Research Centre for Physics (Wigner RCP) is one of the largest research institutes of the Hungarian Academy of Sciences. It is located in Budapest and 350 researchers and engineers are working in it.

The mission of the Wigner RCP is to perform basic research in the fields of particle and nuclear physics, plasma physics, space science and technology, solid state physics, neutron physics, optics and information technology. The Wigner RCP is willing to increase its activities on knowledge and technology transfer and to

apply the collected results in other fields of physics, engineering and industry.

The Wigner RCP joined HEPTech in 2013 to increase these TT activities and learn different methods of innovation. Recently, an expert group has been established to help this innovation activity. The researchers of the Wigner RCP are looking forward to participate in different HORIZON 2020 projects in order to explore the opportunities of technology transfer during the next years.





### **PETER LEVAI**

**Director General of MTA  
Wigner Research Centre for  
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Peter Levai is the Director General of the MTA Wigner Research Centre for Physics since 2012. He is corresponding member of MTA (Hungarian Academy of Sciences). He obtained his Master degree in physics in 1986 and his PhD in high-energy nuclear physics in 1989 at the Eötvös University, Budapest.

He has continued his research activity in the United States, as a post-doc. He returned home to the KFKI

Research Institute for Particle and Nuclear Physics (KFKI RMKI) - the predecessor of the Wigner RCP - in 1992, but continued collaborating with his USA colleagues working in universities and national laboratories, spending half of his time in foreign countries. He received the degree Doctor of Science at MTA and his habilitation at Eötvös University in 2000. He became the Head of the Theoretical Physics Department at the KFKI RMKI in 2002.

From 2005 he has been a group leader and coordinator of a Hungarian research group at ALICE in CERN, and from 2010 – Hungary's representative at CERN Council.

He was elected in 2010 as a corresponding member of MTA and supports Hungarian participation in big scientific cooperations.



### **ZSUZSANNA TANDI**

**Innovation Advisor**

**HEPTech representative of MTA  
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Zsuzsanna Tandi joined Wigner Research Centre for Physics as an innovation adviser at the beginning of 2013. Her job is to build up the Technology Transfer Office aimed at implementing the organisation's innovation policy and establishing its international relations network.

Zsuzsanna has a degree in telecommunication engineering and is a Certified Foreign Affairs Specialist.

She has an extensive background in the development of commercialization of research results, caring for all aspects of R&D, technology transfer, intellectual property, spin-off creation and contacts with industry.

Zsuzsanna is also responsible for developing and maintaining relations between industry and Wigner, an activity whose most important aspect is to bridge the gap between research motivated innovation and its applications in the industrial world. Zsuzsanna has been the Head of the European Space Agency Technology Transfer Office in Hungary since 2016

# NOTES

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