



## NEWSLETTER

Issue 07, December 2021

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## In Focus

### **Maurizio Bona, the leaving board member who has represented CERN**



Pic: Georgetown University Qatar

Maurizio Bona joined formally HEPTech in 2017, as the CERN representative. Thanks to a network of contacts developed during his long experience at CERN, in particular during the development phase of the prototype superconducting dipoles for the LHC, his presence in the HEPTech Board ensured inputs in line with CERN's KT strategy on knowledge transfer, in line with the departmental guide-lines and the European strategy on particle physics decided by the CERN Council.

According to Maurizio, the main asset of HEPTech is that the presence of various HEP Institutes allows the identification and the implementation of synergies among the members that strengthen image and consideration of the whole HEP sector.

As a part of his CERN mandate, he contributed to reformulating the HEPTech governance structure by proposing, inter alia, the rotation of the HEPTech Chair, a solution that is now showing its positive effects.

He insisted on the importance of not only discuss all together topics that are common to the various members, but also to act together, in order to profit from synergic actions. In this respect Maurizio, who is also representing CERN in the Agreement with the Enterprise Europe Network (EEN), promoted the dialogue and the collaboration between HEPTech and EEN. This collaboration is now developing with appreciation from both Networks as well as from CERN, which in the future will develop its contacts with EEN predominantly through the HEPTech/EEN cooperation.

Maurizio's mandate as the CERN representative in the HEPTech Board will end on 31 December 2021. Giovanni Anelli, the Head of CERN KT Group, will take over as from

January 2022. In leaving HEPtech, and CERN, Maurizio hopes that HEP knowledge transfer will develop more and more, as basic research is essential for society, and that this process could include also of the contribution that can come from people who had past working experiences in HEP Institutes but are no longer work there, as they can widely spread, including in other fields that HEP, the knowledge they previously acquired.

## **AIME21**

The 5<sup>th</sup> Academy Industry Matching Event on information technology was organized in Budapest, Hungary on the 11-12<sup>th</sup> November 2021 by Wigner RCP and CERN. The aim of this event was to bring together Academic researchers and Industry experts to share ideas, potential applications and to foster collaborations in the newly emerging field of Artificial Intelligence and Machine Learning with particular focus on Quantum Algorithms. The event was organised in hybrid mode, accepting on-site and on-line participation.

The oral presentations were recorded and the recordings will be made available after a final editing. The AIME event was visited by 20-25 participants on-site and was followed by 35-40 participants on-line via ZOOM-connection.

Prof. Lloyd (MIT,USA) and Prof. Szalay (John Hopkins, USA) presented their novel opinion on scientific application of such modern methods as Artificial Intelligence and Machine Learning. Speakers from CERN, Attila Krasznahorkay and Dalila Salamani presented specific applications at CERN on high energy physics. Industry was represented by speakers from large size companies (e.g. Continental) and small size enterprises and startups (see e.g. the talk from CursorInsight). Possible applications of Quantum Computers and Quantum Algorithm ignited vivid discussions between speakers and attendees. Many participants missed the personal discussion in the coffee break, which was a very important ingredient of the previous AIME events in Budapest.

You are warmly welcome on the 6<sup>th</sup> AIME event on information technology in November 2022 in Budapest!

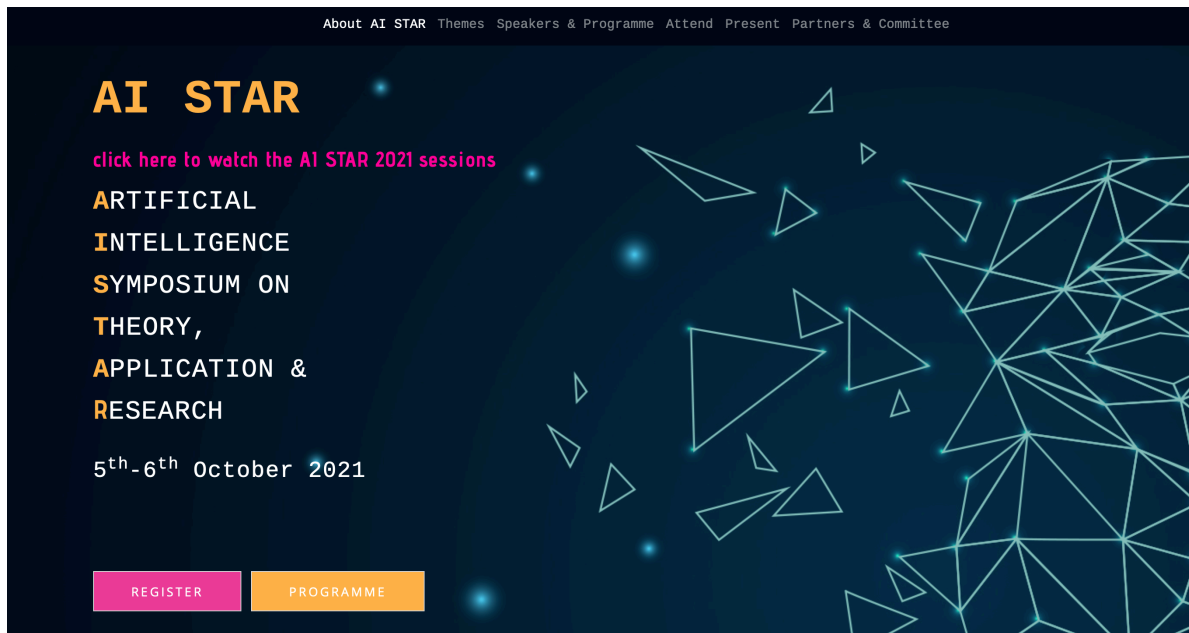
[More information](#)

## Around the members

### AI STAR: Artificial Intelligence Symposium on Theory, Application & Research jointly organised by ESA/ ESOC, FAIR/GSI & Merck

The Artificial Intelligence Symposium on Theory, Application and Research was a two-day virtual event featuring technical talks, networking opportunities and exciting project poster spaces in the fields of Research, Methods and Algorithms, Human Impact, and AI Application.

The Symposium brought together AI experts and enthusiasts from industry and academia to explore, connect, network and exchange ideas in October 5-6<sup>th</sup>.



Pic: AI Star Website

Scope of the symposium where to identify concrete technological solutions addressing current and future needs in our organizations, to connect the communities and enable interactions to lay the foundations for further collaborations and to inspire and enable the public to learn about AI research and applications from experts.

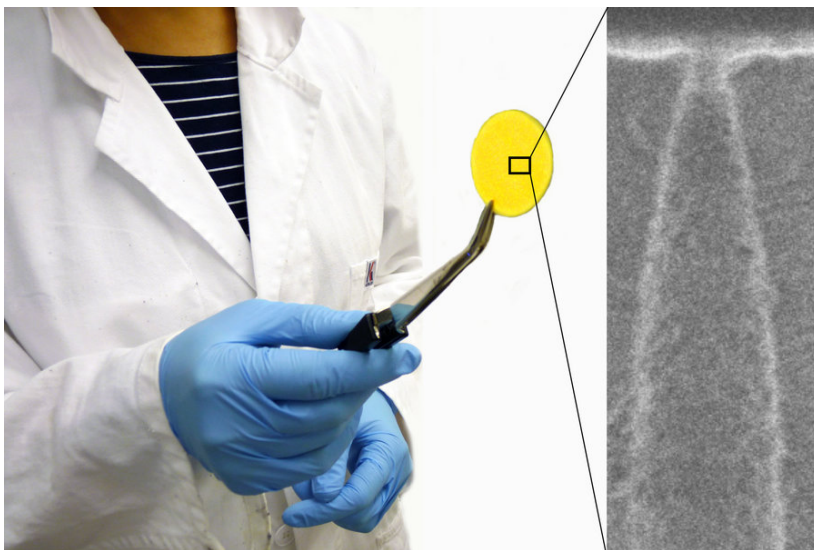
The themes:

- HUMAN IMPACT: Dependability, explainable & trustable AI, AI & Ethics
- RESEARCH, METHODS AND ALGORITHMS: Knowledge-based systems, Deep Learning, Machine Learning, Reinforcement Learning, Hybrid Modelling, Natural Language Processing, AI Tools & Platforms
- AREA OF APPLICATIONS: Automation & Autonomy, Healthcare, Simulation/Digital Twin, Image Processing, Cybersecurity, Virtual/Augmented Reality, Knowledge Management, Data Science & Analytics

An online recording is now available.

[More information](#)

## New sensor for SARS-CoV-2 and other viruses based on GSI nanotechnology



Pic: GSI/FAIR

Easy and fast detection of viruses are crucial in a pandemic. Based on single-nanopore membranes of GSI, an international interdisciplinary team of researchers developed a test method that detects SARS-CoV-2 in saliva, without sample pretreatment, with the same sensitivity as a qPCR test, and in only 2 hours. On top, the sensor can distinguish infectious from non-infectious corona viruses — a crucial innovation. By linking different technologies, an interdisciplinary team of scientist of the Materials Research Department of GSI Helmholtzzentrum für Schwerionenforschung, the National Scientific and Technical Research Council (CONICET) in Argentina and the University of Illinois in the USA, has developed a highly sensitive nanopore sensor that specifically detects SARS-CoV-2 viruses and human adenoviruses in a variety of specimen including saliva, serum or environmental samples such as wastewater. The sensor combines two key components: a sensitive nanochannel and highly specific DNA molecules attached to the channel surface. According to the research groups, the method is as precise as PCR tests, but simpler and faster providing results in less than two hours. The results are published in the prestigious journal Science Advances.

[More information](#)

## **INFN joins Alliance Against Cancer**

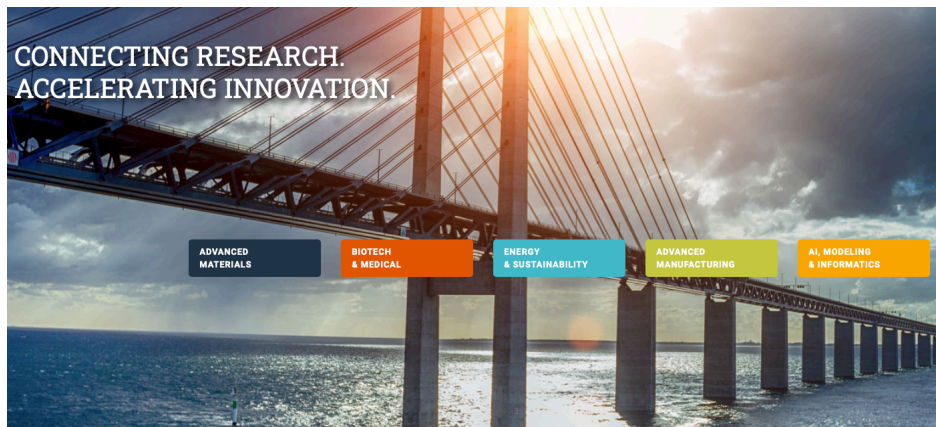
The governing council of the Alleanza Contro il Cancro (Alliance Against Cancer), the national oncology network of the Italian Ministry of Health, expressed a unanimously favorable opinion to INFN's and the Foundation of the Polytechnic of Milan's application to join the network as ordinary and associate members respectively. Both the facilities (the Foundation through the Polytechnic) already collaborate with ACC in Health Big Data, through a 10-year project funded with € 55 million by the Italian Ministry of Economy and Finance, coordinated by the Ministry of Health, which involves 51 IRCCS (Italy's nationally significant biomedical institutions) belonging to the oncology, neuroscience, and cardiology networks.

[More information](#)

# TechConnect Europe

The TechConnect Europe Innovation Conference & Expo, took place in Malmö 15-17<sup>th</sup> Nov 2021, designed to connect top applied research and early-stage technologies from universities, labs and startup with industry and investment end-users and prospectors. Startups, intellectual property, early-stage technologies were there for pitch and showcase consideration, and to be connected with participating industry scouts and investors. TechConnect had an exciting speaker program along with scientific tours to the new large scale research facilities, including the European Spallation Source (ESS), Lund University and NanoLund facilities and of course beautiful Malmö Sweden and Copenhagen Denmark. This was an interesting event. Well worth putting in your calendar for next year. Many HEPTech members and partners attended, benefiting from a ENRIITC partner discount.

[More information](#)



Pic: TechConnect Europe

## Next events

### HEPTech Board Meetings and HEPTrepreneurs series

The HEPTech Board Meetings 2022 will take place on June 3<sup>rd</sup> and December 9<sup>th</sup> at 9:30 CET.

The HEPTrepreneurs series 2022 dates will be announce at the beginning of in the next year.