AMALDI RESEARCH CENTER – OPEN DAY – QUANTUM TECHNOLOGIES

22 November 2019, h. 15:30, Physics Department, Amaldi Room

The public outreach event "Amaldi Research Center – Open Day – Quantum Technologies" has taken place on 22 Novembre 2019 starting from 15. This event was dedicated to the general public from High School. The news on the event has been promoted regularly thorugh different channels, including:

- Amaldi Research Center website (http://www.roma1.infn.it/amaldicenter/news/ARC-openday-QT-big-2019.html)
- Physics Departiment Website (https://www.phys.uniroma1.it/fisica/archivionotizie/amaldi-research-center-open-day-2019)
- Direct dissemination to high schools through mailing lists.
- Social media.

Approximately 120 persons registered to the event, while more than 130 persons actually participated. The public was mainly divided between student and teachers from High Schools, and students from the Laurea Degree in Physics. Furthermore, 36 participation certificates have been provided upon request.

The Open Day has been transmitted in live streaming, with the help of INFN, through the following Youtube channel https://www.youtube.com/channel/UC0NgWhKe1yExeNqFB0qU7Kw/live.

Furthermore, the full event video registration will be permanently available on the Youtube platform at the following link: https://www.youtube.com/watch?v=FrZZMBxqSFs.

The event program has been the following:

- 15.30 Welcome, Director of the Physics Department, Prof. Paolo Mataloni
- 16.00 Seminar "Towards the second quantum revolution", Prof. Fabio Sciarrino
- 16.45 Live experiments on quantum entanglement from the Quantum Information Lab, Physics Department
- 17.15 Meet the scientists

The event has been opened by the Director of the Physics Department, Prof. Paolo Mataloni, who described the activities of the Amaldi Research Center within the Dipartimento di Eccellenza project, introducing the quantum technology field which is the subject of the Open Day event.

Subsequently, Prof. Fabio Sciarrino has delivered a seminar dedicated to quantum technologies In this seminar, a first part has been dedicated to the development of Quantum Mechanics, while the second part has been devoted to a description of the current research activities in the field of Quantum Information. In particular, a live experiment on quantum entanglement has been performed between the two parts of the seminar by exploiting a remote link with the laboratories of the Quantum Information Lab of the Physics Department. More specifically, the participants had the opportunity to observe in real time a research laboratory operating in the field of photonic quantum technologies. By exploiting the remote link and a dedicated software, the participants had the possibility to observe a live experiment where entangled states of two photons have been generated and measured. All the parts of the experiments have been carried out, including an overview of the experimental apparatus enabled by a camera connection. After the end of the Open Day event, participants have expressed a positive feedback on this live experiment activity. For instance, there have been several requests of a video registration of such activity to show this live experiment in High Schools. This will be enabled by the permanent link on Youtube mentioned above. Furthermore, the possibility of future live remote link with the laboratory for further live experiments have been requested. The overall time duration of the seminar and of the remote link was approximately 1 hour and 15 minutes.

After the seminar, aided by coffee and refreshment, a Meet the scientists informal meeting took place. In this part of the Open Day, the participants had the opportunity to ask questions and discuss with the master students, PhD students and post-docs of the Quantum Information Lab. Those scientists were identified by a t-shirt designed for the event. Within this informal meeting, participants have received USB pendrives which included dissemination material on quantum technologies, the

Scientific Report of the Physics Department describing all research activities, material on Gender and Diversity in Physics at Sapienza, and all information to attend the Laurea Degree in Physics at Sapienza. The most frequent questions are enlisted below:

- Clarifications on the post-degree academic career, in particular the activities of PhD students and post-docs.
- Further question on the live experiments performed during the event.
- Question on potential job opportunities after taking a degree in Physics.

Teacher from High Schools that attended the event have expressed interest in participation to future similar dissemination activities.