Magiczny Kraków

Summary of the Quark Matter International Conference

2022-04-27

On 4-10 April 2022, Auditorium Maximum of the Jagiellonian University in Kraków hosted the 29th edition of the *Quark Matter International Conference*. The main organisers of this event were: the Faculty of Physics, Astronomy and Applied Computer Science of the Jagiellonian University; the Henryk Niewodniczański Institute of Nuclear Physics of the Polish Academy of Sciences, and the Faculty of Physics and Applied Computer Science of the Stanisław Staszic AGH University of Science and Technology in Kraków.

The conference took place in a hybrid format. 1010 participants attended it: 394 on-site and 616 remotely, representing Europe (54%), America (28%), Asia (18%) and Africa (0.2%).

Quark Matter is an international conference dedicated to the study of the properties of nuclear matter under extreme conditions of exceptionally high temperature and density. This matter is produced in ultra-relativistic nucleus-nucleus collisions. The conference is a platform for sharing knowledge and experience between theorists and experimentalists from all over the world.

The first day of the event included so-called Student Day, during which introductory lectures on the conference topics were delivered. The tutors were leading field experts. The Student Day culminated with an open special presentation on quantum technologies, delivered by Arthur Konrad Ekert, professor at the National University of Singapore and the University of Oxford.

During the conference, the latest results of experiments carried out in leading laboratories such as CERN (Switzerland) and Brookhaven National Laboratory (USA) were discussed, as well as the latest results of theoretical work aimed at explaining the properties of the investigated new state of matter. One of the theoretical lectures was given by Frank Wilczek, 2004 Nobel Prize winner. The participants of the event spoke about basic questions concerning strongly interacting matter in extreme conditions and issues related to quantum chromodynamics – the fundamental theory of strong interactions. Attention was also given to the results of scientific research on electromagnetic interaction.