

INCONTRI DI FISICA 2.0

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The Italian Institute of Nuclear Physics, INFN, and Università degli Studi Guglielmo Marconi continue their strong and fruitful collaboration in scientific research and learning programs. In this context, after fifteen successful editions and starting from 2016, the two institutions propose together a new version of the “Incontri di Fisica”, now named “Incontri di Fisica 2.0”.

Incontri di Fisica is a refresher course for secondary school teachers that take place every year at Frascati National Laboratory. The aim of this course is to offer three days of activities hosted by the research laboratory. During these days, the activities are divided into two parts. A theoretical part including: colloquia on modern physics, refresher course on physics, last discoveries in the physics sector, etc. Every year, these lessons are given by experts of Frascati laboratories or of other INFN structures directly involved in the research.



During “Incontri di Fisica”, one entire day is reserved for experimental activities. Participants are divided into groups of about ten participants and each group is hosted in a real research facility of the Frascati laboratories. During this activity, participants are involved in specific experiences that often require the use of research instrumentations, the development of custom software for data analysis and a set of tasks like in the modern research experiments.

In agreement with the current internet trend, the suffix 2.0 indicates both an upgrade and a technological support. In particular, an online part enriches the programs enlarging the didactical offer and the material specifically realized for participants. Obviously, face-to-face part of the course remains unaltered and is always hosted by INFN-Frascati giving to participating teachers the possibility to enter in one of the most important research structure active in Italy.

Recognizing the important experience and the role in this sector matured in ten years of activity, Guglielmo Marconi will produce the e-learning part and the participant teachers will attend e-lessons on a dedicated Learning Management System. The proposed program includes lessons on: new pedagogical approaches for STEM learning, modern physics, high energies physics and on the last important discoveries in the research and technological scenario. Moreover, some multimedia laboratories have been developed specifically for this course. These products include simple classical physics experiences to offer new technological e-laboratories that teachers can use during their lessons. In this context, some e-lessons are also dedicated to show simple and economical ideas to realize STEM laboratory for secondary school. As known, too often in our schools there is not the possibility to create and/or maintain laboratory space and multimedia products represents a valid and modern solution to fill this lack. Moreover, there is a huge number of lab-activities that can be proposed also in secondary schools exploiting for example smartphones and tablets and that can be organized simply into a secondary class.

The main goal of both the e-learning and face-to-face part of “Incontri di Fisica 2.0” is to offer to teacher ideas, experiences and modern physics concepts that can be told to the students in class showing the possibilities offered by these research activities increasing the important link between school, university and research laboratories. Moreover, exploiting both the possibilities offered by modern LMS and the face-to-face part, another goal is the creation of a secondary school network for the teaching of STEM subject. Teachers of this network can exchange information, teaching methods, ideas for laboratory experiences, etc. and this course can create the necessary connections to establish a first contact.

The final program of “Incontri di Fisica 2.0” includes 30 hours in e-learning and 25 hours face-to-face in INFN-Frascati. Secondary school teachers can register to this event directly online through Guglielmo Marconi website (<http://www.unimarconi.it/it/incontri-di-fisica-2-0>). Teachers enrolled in this course will receive 6 ECTS.