

The ATLAS Experiment for Schools

1. Workshop Description

Over the last decade it has become more evident that direct interaction with scientists can result in decreasing the gap between research and schools. Such interaction besides demystifying what scientists do and showing how science really works also increases the motivation of teachers and inspires curiosity by addressing big and current questions. The “Learning with ATLAS @ CERN” project introduces a technologically advanced approach for learning by connecting a science institution and frontier research, namely CERN and the ATLAS experiment, with a wide range of learning environments such as schools, universities and science centres. The ATLAS experiment as one of the world’s largest and most complex experiments is having a big impact in inspiring young people to study and appreciate science.

In this framework, scientists working on the ATLAS research project will present innovative educational tools that create 2D and 3D animations and simulations of physical processes and experiments. Moreover, they will show how these developed advanced tools can be used to inspire curiosity, enhance the quality of teaching and give to learners the opportunity to interact directly with real scientific data taken nearly at real time from the CERN laboratory in Geneva. Learning by gaining exposure to the ATLAS experiment in a way that is appropriate to every individual’s level of understanding is also important and will be addressed. In addition, educators will present educational scenarios for science centres and demonstrate how these new educational tools related to the ATLAS experiment can engage science centre visitors in episodes of playful learning.

During this workshop the “Learning with ATLAS @ CERN” consortium will present its methodology for designing, expressing and representing educational practices in a commonly understandable way along with the implementation of the educational activities following the specific educational approach.

2. List of speakers & the title of their talks

Convenor: *Dr. Angelos Lazoudis*

(Part I)

Dr. Crispin Williams and Dr. Despina Hatzifotiadou (University of Bologna)
“The Extreme Energy Events Project (La Scienza nelle Scuole)”

Dr. Despina Hatzifotiadou (University of Bologna)
“An exercise based on visual identification of strange particles - an ALICE experiment proposal for the MasterClasses”

Dr. Michail Koratzinos
“The LHC adventure”

Dr. Kenneth Cecire
“International Masterclasses in Physics”

Prof. Christine Kourkoumeli
(National Kapodistrian University of Athens)
“Learning with ATLAS @ CERN”

(Part II)

Prof. Erik Johansson
(University of Stockholm)
“The ATLAS Outreach Programme”

Prof. Peter Watkins
(University of Birmingham)
“Educational Scenarios for University Students based on the ATLAS experiment”

Prof. Franz Bogner
(University of Bayreuth)
“The users’ impact of the ‘Learning with ATLAS@CERN’ portal”

Dr. Christian Reimers
(Austrian Federal Ministry of Education, Arts and Culture)
“Mobile Applications for the ATLAS Outreach Programme”

Dr. Michael Barnett
(Lawrence Berkeley National Laboratory)
“Educational Programs in the US with ATLAS Data”