IDEA League Physics Trip 2018

Report by the student association of mathematics/physics/computer science at RWTH Aachen

Introduction

The purpose of this report is to review the 2018 IDEA League Physics Trip to Switzerland organized by student associations from RWTH Aachen, ETH Zurich and Politecnico di Milano and to display its beneficial impact on inter university contacts as well as the diverse fields of physics looked into.

Talks at Université de Genève

In Geneva, Prof. Jérome Kasparian presented on laser filamentation including atmospheric applications of statistical physics. After that, Prof. Markus Stoffel's work group from the same institute talked about historical and geographical records of events which had a large impact on climate such as volcano eruptions. The first talk especially fascinated the participants and also the latter offered a surprising perspective on long term consequences of climate change.

Visiting CERN

Our group of 46 was split in two for a guided tour through the European Centre for Nuclear Research (CERN). For many participants already aiming at working right there some day this was noticeably the highlight of their trip. One got to see both the Synchrocyclotron, which featured an impressive film on the beginnings of CERN, and the ATLAS detector control room, where one could observe researchers analysing live decays. Subsequently, the group got the chance to check out the Microcosm exhibition on everything there is to know about the facility and its development.

Talks at ETH Zurich

At Zurich's renowned technical university, the group was offered two talks on particle physics research done at CERN's CMS experiment and one on high precision measurements. Prof. Wallny gave an introduction to particle physics, its Standard Model and his research. Prof. Dissertori later discussed the questions left unanswered by theory and the consequences this research might have on society encouraging an active debate with the group. In the third talk, Matt Grau from the ETH institute for quantum electronics focused on high precision measurements in the context of the verifiability of models explaining the charge-parity violation – undoubtedly the most challenging talk of the week.

Visiting PSI

Following an introductory presentation, the participants were shown around the premises of the Paul Scherrer Institute (PSI) in Villingen. The group visited PSI's particle colliders and was told about their research on proton beam therapy for cancer treatment. Additionally, researcher Anna Soter presented on the special experimental approach of particle physics at PSI in contrary to the work done at CERN, Dr. Michael Spira then talked about the theoretical work behind that and Prof. Dr. Christof Niedermayer performed an experiment on superconducting materials.

Team Spirit

Since the group necessarily spent a lot of time together and naturally shared a common interest in physics, the participants quickly grew close. Joint board game nights in the hostel, sleeping together in a large civilian bunker in Zurich and dining together, including having a barbeque with ETH's student association for mathematics and physics, certainly enhanced this process.

Conclusion

Due to the diversity of the programme all participants gained their share of new and interesting knowledge. The whole team involved was content with the success of the collaboration, not only having learned lots from the process, but also because of the positive impact the project has had.