

1 Preface

This annual report gives a flavor of the broad range of research activities carried out at the Department of Physics of UZH. It provides a snapshot of the current state of various longterm projects and highlights in particular the progress achieved over the last year. Presenting these results with pride, we thankfully acknowledge the continued support from the Kanton Zürich, the Swiss National Science Foundation, the European Commission, and others who have made this fundamental research possible. The experimental activities span several subfields of physics, from particle and astroparticle physics, hard and soft condensed matter physics, surface physics and nanoscience, to the physics of biological systems. Theoretical activities include precision calculations of processes in quantum chromodynamics and new theories beyond the standard model of particle physics, astrophysics and general relativity, as well as topological concepts in condensed matter physics. To further increase the diversity of research topics, which is important in particular for the students, other physics-related groups from within the Faculty of Science and beyond were affiliated to our department. This means that their research is also presented on our home page (<http://www.physik.uzh.ch/en/research.html>), and they can offer Bachelor or Master projects for our students.

An important asset to the research environment in our department are the excellent mechanical and electronics workshops, as well as the efficient IT and administrative support. Thanks to this strong infrastructure department, our research groups are able to make important and highly visible contributions to large international projects at CERN and LNGS.

The past year brought several prestigious new grants to the Department of Physics. Laura Baudis started her ERC Advanced Grant, Titus Neupert received an ERC Starting Grant, adding to the already running Starting Grants of Johan Chang and Nicola Serra and the Consolidator Grant of Stefano Pozzorini. Marta Gibert joined the department in February of this year with her SNF Professorship, setting up a Laboratory for the controlled layer-by-layer growth of transition metal oxides and for studying the physical properties of perovskite heterostructures. In addition, the department will soon host three (!) more SNF Professorships that were awarded in March 2018 and who will start in the course of this year. Finally, Nicola Serra was elected as Physics Coordinator for the MegaScience-Project at the Moscow University for Science and Technology MISis. All these grants bring additional people to the department, which continues to grow. At the end of 2017, there were a total of 163 employees from 32 different countries, distributed over 18 research groups and general services. There is a continuous coming and going of people, with 52 newcomers and 42 departures over the last year. Laboratory and office space is limited, which means that people have to move closer together, and groups have to start sharing offices. The arrival of new SNF professors will help to attract more physics students, in particular in our Master programs, by increasing the diversity of research projects and special lectures.

Student numbers in the physics major Bachelor program have reached a record high, with 68 new students entering the first semester in fall 2017. This is likely a consequence of the excellent outreach efforts over the last several years carried out by many members of the department. Likewise, student numbers in the basic physics lectures that we teach to students from other departments of our faculty and from the Faculty of Medicine, continue to grow. This means that several professors and many PhD students are busy teaching to non-physics majors. In fact, many Master and Bachelor students had to be recruited as tutors for teaching exercise classes for these students.

On November 24, the Department of Physics organized an Alumni Day, with lab tours and poster presentations by the students and postdocs. Three posters were awarded a Poster Prize. The event was very well received by everybody and attracted a good number of 40 former students, postdocs, employees or professors. It will be repeated in similar form, fostering networking and nostalgia. As an immediate outcome, it resulted in the introduction of the new Dectris Prize for excellent Master theses, donated yearly by the company of the same name.

For the first time since the department moved to the Irchel Campus in 1993, the building received a 'face-lift', with walls getting painted, screens being installed for general information and for poster presentations, blackboard walls for informal hallway discussions, new poster frames, and many intermediate and full-size pictures illustrating science in a colorful and artistic way.

The following page will honor Hans-Werner Fink's contributions to the research and teaching at the Department of Physics. He has retired in February of this year. An obituary for Ralph Pixley follows, who has had a significant impact on the department's research and in particular the teaching for half a century.

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