

CHIPP - outreach report, June '22

2021/22 still challenging for outreach events:

- Masterclasses – at BERN, EPFL and Zurich
- High-School Students Internship Program, HSSIP – Oct 17-30 (video)
- Activities for high-school students: ongoing at UZH (Science Lab, well attended)
- PSI has restarted normal visiting program

But new paths and tools to attract different people and wider audiences – also for the future:

- Virtual visits, online events, virtual talks, videos, ...

Some great achievements in the past months

- Science Pavilion UZH: exhibit space with temporary exhibitions, well attended guided tours (LHC & Dark Matter)
- Scientifica '21: Zurich Science Days September 8./9: tours to Xenoscope, lectures, booth (LHC and Dark Matter) theatre on black holes: good attendance despite Covid restrictions
- Nacht der Physik (ETH)

Ongoing

- Regular CHIPP news articles by Benedict Vogel & Barbara Warmbein (since '22)
- Women and girls in science, February 11: tweets and special programs for girls in science
- Talks, (virtual) visits, some (virtual) courses, mentoring

Outlook

- Restart LHC | Higgs@10 | open days at PSI | Scientifica '23

for extended report, see CHIPP agenda ideas/suggestions?

→ Katharina (kmueller@physik.uzh.ch)

Masterclasses

'21: some online masterclasses or masterclasses for individual classes

International masterclasses resumed in '22 with 223 Masterclasses (ATLAS, CMS, LHCb & ALICE)

Masterclasses Zurich, Bern, Lausanne in spring '22

good attendance



School classes & visits

Courses for students & schools:

- Science Lab UZH
- iLab, PSI visiting program resumed
- Phiscope, Geneva

Visits:

- PSI Forschung online erleben (virtual visit)
Mit kosmischen Teilchen den Geheimnissen des Universums auf der Spur
- Science Pavilion UZH for school classes
- EPFL: Musee de Physique
→ have a look at the movie:
<https://www.epfl.ch/labs/lphe/visite-virtuelle-de-lhcb/>
- LHC experiments: many excellent online visits
of the experiments with contributions of Swiss researchers



Internships / Matura projects / Mentoring

Internships / Maturarbeit (projects in final year of high-school)

- + very useful for students at university and high-school level
- + can attract good students to your group or university
- + visibility
- time consuming
- timing difficult (school holidays in summer)

Mentoring - at various levels:

- High-school (advisor for natura projects, eg SCNAT)
- Girls in STEM (eg Swiss Tec Ladies)
- Mentoring for Female Students (ETH)
- LHC Early Career Mentoring Projects

High-School Students Internship Program 2021 for Swiss Students (HSSIP)

CERN invites high-school students (aged 16-19) to come to CERN for two weeks, to gain practical experience in science, technology, and innovation

Switzerland took part for the first time October 17 – 30, 2021 (program)

Highly motivated students who worked on great projects and gave excellent talks after two weeks at CERN

Huge thanks to all the supervisors who helped the students in these two weeks!

Big thank to Massi Ferro-Luzzi and Jorg Wenninger for organising the supervisors!

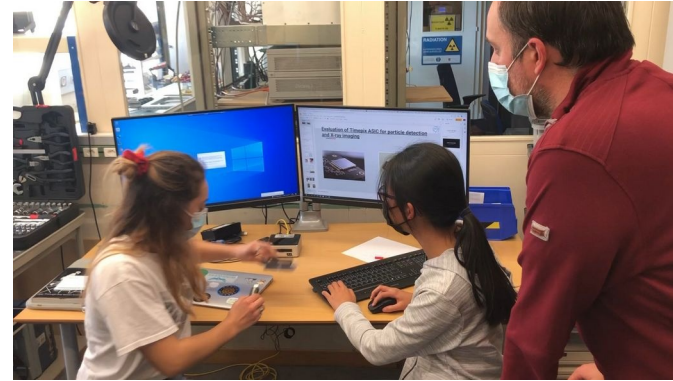
CHIPP article, video , detailed program <https://hSSIP.web.cern.ch/>



HSSIP – projects



- Future circular collider as X-ray source
- Beam parameter measurements on SPS
- Evaluation of Timepix ASIC for particle detection and X-ray imaging
- Beam size measurements
- Large Hadron Collider beam dumping system
- Design and test a simple pattern matching algorithm using basic discrete components



- Response of fast silicon hybrid sensors
- Characterization of Micro Pattern Gas Detectors using particle beam extracted at the SPS at CERN
- Charged Particle Detector characterisation
- Initiation to scintillator characterisation
- Quality Assurance on C++ core components of the CS using clang static code analysis in gitlab pipelines, and sonarqube for visualisation
- Testing of the carbon-nanotube based water leak detection system

Science Pavilion @UZH

Discovering Shapes of Science

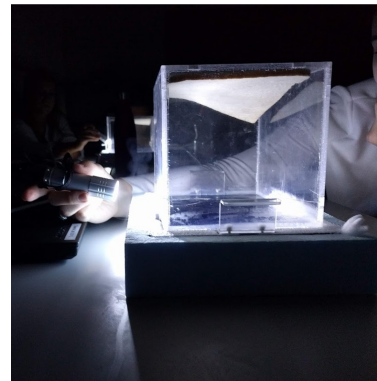
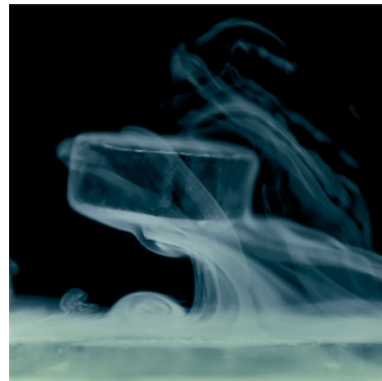
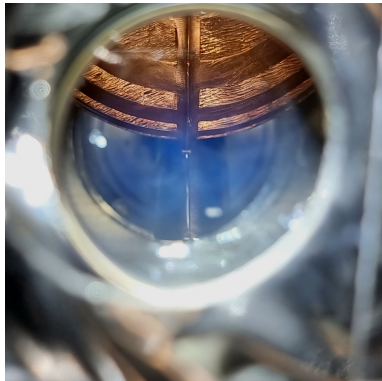
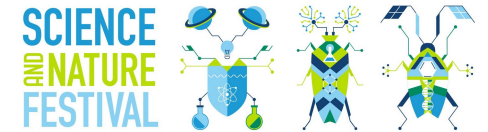
University of Zurich, Irchel Campus Science Pavilion UZH:

Small exhibition hall on the campus: showcase for science with six temporary exhibitions

Presently three physics exhibits:

- Superconductivity with levitation experiment
- Research at CERN: CMS with to scale model of the detector and LHCb detector
- XENON – search for Dark Matter with TPC of XENON1t built at UZH

Science & Nature festival: tours, lectures, workshops



CHIPP articles – Benedikt Vogel, Barbara Warmbein

About 10 articles per year, funding from SCNAT since 2015

Published articles:

CHIPP : <https://chipp.ch/de>

SCNAT: <https://naturalsciences.ch/>

Benedikt Vogel until 12/21

Barbara Warmbein since 1/22

Ideas for an article?

Contact Katharina (kmueller@physik.uzh.ch)



Articles from Benedict Vogel

June 22: Making (gravitational) waves in Switzerland

April 22: Isotope factory and experimental arena

Feb 22: Shrouded in mystery: how Swiss researchers are on hunt of the neutrino

Nov 21: Swiss high school students experiment at CERN

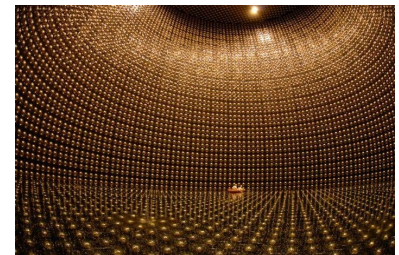
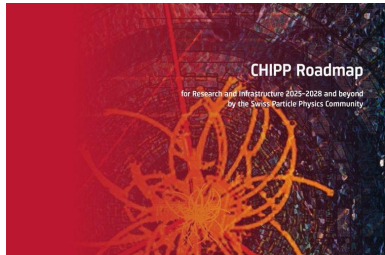
Sept 21: The guide to Swiss particle physics

Sept 21: Gabriel Cuomo receives the CHIPP prize

In the pipeline: CHIPP prize, Higgs@10, LHC restart

Ideas for an article?

Contact Katharina (kmueller@physik.uzh.ch)



Women and girls in science, February 11

- Large twitter activity CERN, CHIPP and universities
- offer local schools the opportunity to welcome a female scientist/engineer to present her work to classes
- Interviews etc with women in research
- Special activities/workshops for girls at university

Scientifica '21

September 21: Scientifica,
Synthetic naturally, ETHZ & UZH.

Booth on particle physics at CERN and dark matter, Labtour to XENOSCOPE theatre on black holes
In-person event, at various places of UZH and ETHZ, about 10'000 visitors
very well received



Night of Physics (ETH)

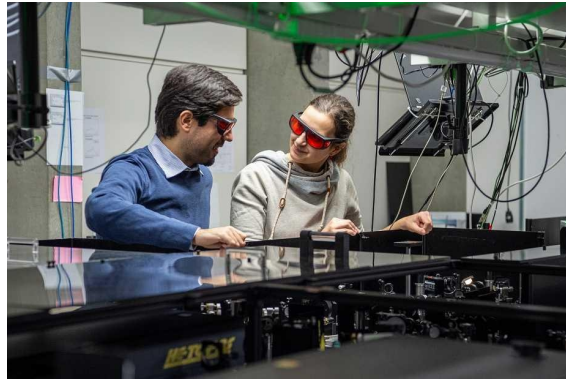
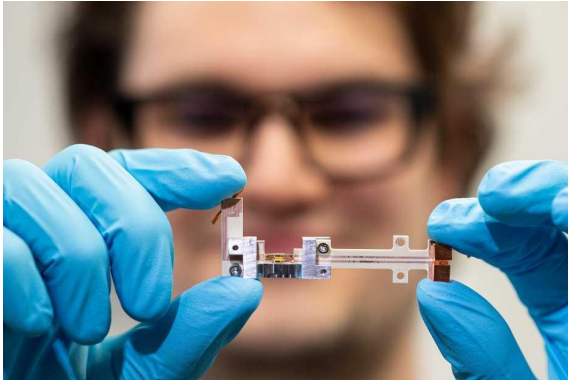


Lectures, lab visits, hands-on experiments, booths

Guenter Dissertori: Was haben das Higgs Boson und Alzheimer-Früherkennung gemeinsam?

Rainer Wallny Quarks, Higgs & Co.: Neues vom Large Hadron Collider

Klaus Kirch, ganz Kleines und ganz Grosses – von Teilchenphysik und Musik



International networks - IPPOG

International Particle Physics Outreach Group — <http://ippog.org>

The IPPOG collaboration comprises 37 members
30 countries, 6 experiments and CERN as an international laboratory and 2 associate members

Organises masterclasses for more than 13'000 high school students a year



Lots of outreach material already available or being developed

Websites & Social Media

besides the websites of the institutes and laboratories lots of additional activities

- particle theory, gravity and cosmology <https://un-solved.com/about/> (EPFL and Geneva) funded by an Agora grant of the SNF
- particlephysics.ch
about one article/month on particle physics research, activities, results and their application (supported by Swiss Academy of Sciences, SCNAT)
- IPPOG <http://ippog.org>, newsletter <http://ippog.org/news>
- Facebook: Verflixtes Higgs (<https://www.facebook.com/VerflixtesHiggs/>) fed by Hans Peter Beck
- CHIPP Twitter account [@CHIPP_news](https://twitter.com/CHIPP_news) to spread physics news and increase the public awareness about science
- EPFL maintaining: LHCb Experiment twitter account: [@lhcbexperiment](https://twitter.com/lhcbexperiment) and instagram account with around 3500 and 13000 followers respectively
- University of Geneva: Particle Physics Twitter account [@DPNC_Unige](https://twitter.com/DPNC_Unige).