

# Outreach Report



***1 April 2016***

***RECFA Visit to Switzerland***

***HP Beck / Bern***

# Outreach in the CHIPP Roadmap

<http://www.chipp.ch/chipp-meet-roadmap.html>

**Outreach activities** within science are intended to inform the **political platform**, the **informed public**, or the **potential young physicist**.

In the view of the Swiss particle physics community, the primary aim is to convey to young secondary school students:

- ❑ The importance, excitement and fantasy of basic physics and in particular recent particle physics and related cosmology developments.
- ❑ The importance of a sound mathematical background, since physics is by definition a mathematical description of fundamental phenomena.



CHIPP: Roadmap (2004)  
and updates in 2010

☞ ensure adequate collaboration between Switzerland's high schools and universities on the vital question of outreach.

**Researchers in CH are invited to actively participate in outreach.  
An invitation adopted in the CHIPP Roadmap.**

**Funding of outreach activities is an issue largely left to to the groups, institutes, universities, labs.**

**With minimal and budget, still a lot can be achieved:**

- ❑ **Giving talks** to interested groups, open universities, schools, companies, societies, etc.
  - ❑ Schools, Physics on Friday, Saturday Morning physics, Novartis, SECO, SwissRe, Rotary club, Astronomical society, Swiss Embassy London, etc. etc. etc.  
CHIPP members involving all CHIPP institutes are actively participating and never get tired in giving public talks, participating in public discussion, answering questions, etc.
- ❑ **Coordinated outreach** done at/by universities (cantonal and federal) and laboratories (CERN and PSI)
  - ❑ **Open day events, Bachelor/Freshers information Days**

**Communication offices** at universities and laboratories do a great job in communicating headlines, latest results, press releases  
**but can't explain the details, cannot educate, cannot get close** with the target audience

# *An example of Coordinated Outreach*

- ❑ Visiting high-schools with a traveling exhibition  
“**ETH unterwegs**”, “**ETH on the road**”:
  - ❑ a truck loaded with “Exhibition material, experiments, flyers,  
...”  
[ **various departments participate**; typically about 10-15  
high-schools in fall/winter ]
  - ❑ At the location: a sort of “fair” is set up with a booth for each  
“subject”, where pupils can visit the booth, experiment, read  
and talk directly to researchers/PhD-students of the topic.
  - ❑ During a day, a series of presentations are given,  
**to topics of choice by the school.**
  - ❑ Evening: “Podiums discussions”, and/or  
other events open to the public village/city.



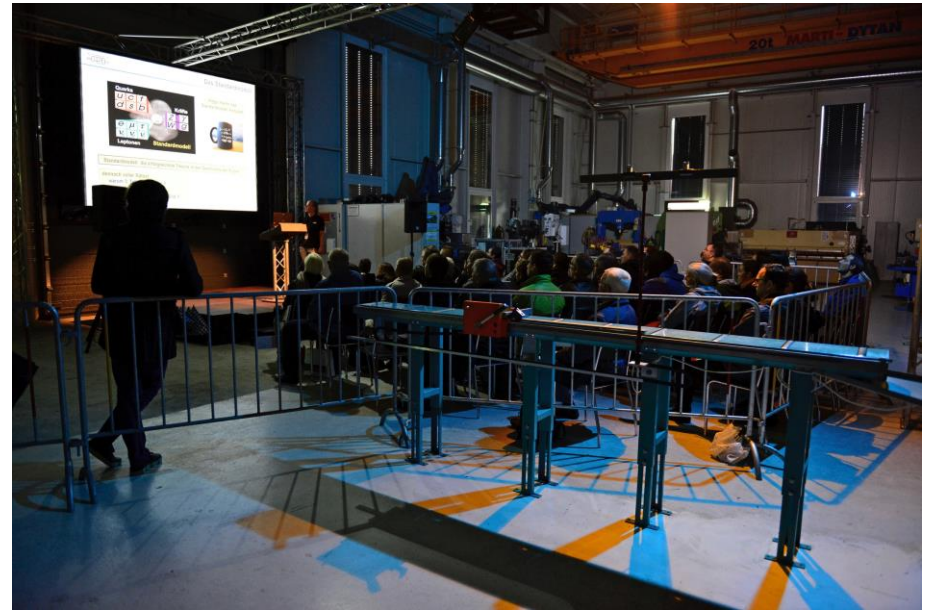
# *Some Facts and Figures...*

## **In 2015 throughout Switzerland**

- ❑ more than **30 educational events** like information days for BSc and MSc students, for pupils finishing high school and for high-school classes were organised involving more than 2000 people.
- ❑ **CHIPP Board Members** gave **about 80 outreach talks** in 2015 on particle physics for high-school students, societies and the general public.
- ❑ **About 50 organized visits to CERN** took place in 2015, not only for university students in physics and other disciplines, but also for children (“Drôle de physique” programme), high-school pupils, alumni, members of societies, the media, and the public at large.
- ❑ An **open day for children** towards their professional orientation (“Zukunftstag”) took place at the Universities of Basel and Bern, which also prepared a few exhibitions.
- ❑ Participation of more than **150 Swiss high-school students** (at the Universities of Bern, Geneva, Zurich and the ETHZ) in the framework of the **International Masterclasses “Hands on Particle Physics”**, where over 10’000 Gymnasium level students in about 200 institutes in 42 countries can actually work with real data from the CERN LHC.

# *Few impressions (by far not complete)*

The **PSI Open Day** attracted about 15'000 people and a sizeable fraction of those came to the Particle Physics Station during the day.



**CHIPP relevant:** a Particle Physics Station with talks (given by PhD students) and a tent with exhibits (explained by staff).

# Few impressions (by far not complete)



Impressions from “ETH unterwegs”

# Organized visits to CERN

~80 visits organized by CHIPP members during 2015

## typical program:

- ❑ Inspirational intro talk from a senior researcher
- ❑ guided tour comprising a selection of relevant visit points i.e. ATLAS/CMS/LHCb, SM18, LEIR, AD, CCC, new microcosm. All involving senior researchers, PhD students and post-docs
- ❑ Lunch; discussion with CHIPP members
- ❑ In particular for CMS: Distributing booklet with Swiss contributions to the construction of CMS and existing liaisons with Swiss companies



Kabelwerk Brugg  
CMS Gold Award, 2002

**BRUGG** CABLES  
Well connected.



### Building the super-conducting cables

Brugg Cables is a global company specialised in technical cables for the power and telecommunication industry, and in coated steel belts for elevators. The company headquarters are in its hometown of Brugg, 30 km east of Zurich. Initial contacts between ETH Zurich and Brugg Cables for the CMS project date from 1997. For the next two years, many important parts of the special production process were planned, tested and

approved. Strands of conductors needed to be knitted to a complex pattern to form the specified profile of the CMS cable.

"At the end of 1999, everything was in place for the start of production. A number of production processes got underway over the next three years for the manufacture of 22 cables, each 2,600 metres long. The cabling machine worked at four metres a minute, operating continuously for 11 hours to make each cable. The collaboration with the CMS scientists played a major role in setting up the best conditions to realize this", Kurt Hächler, Department manager at Brugg.

Empa, a Swiss research institute specialised in material science and technology development, ensured the online quality control of the continuous process (see page 16).

The company has also produced some of cables for the LHC dipole magnets, as well as for the ATLAS air-core toroid magnet.

K. Hächler (from Brugg Cables), F. Pauss and B. Blau observe the superconducting cable



Detailed structure of the cable

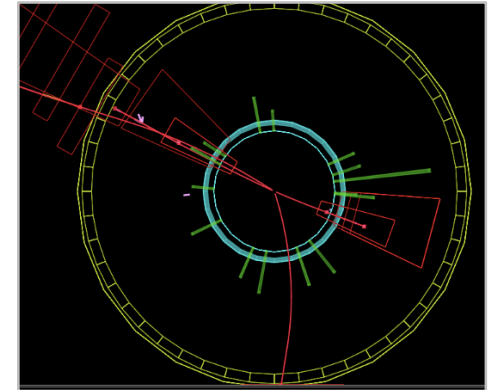
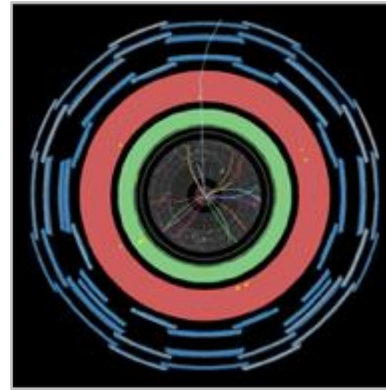




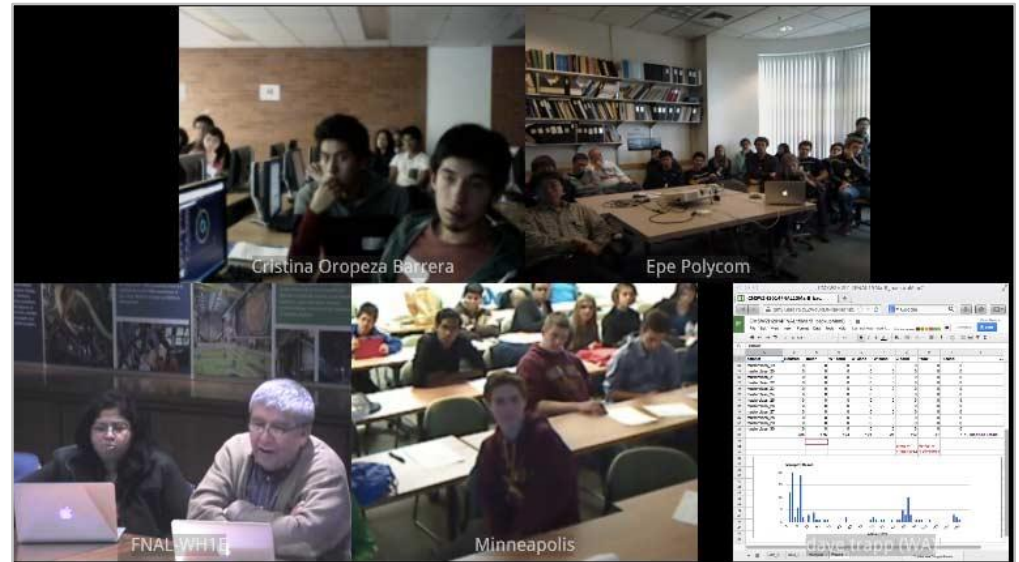
# Masterclass

## High school students become particle physicists at a near-by institute for a day

International Particle Physics Outreach Group ([ippog.web.cern.ch](http://ippog.web.cern.ch))



- Learn the topic
- Analyze LHC collision data
- Get result
- Statistical combination with peer groups
- And
- Discussion in a Vidyo Conference



**Ca 150 pupils every year at Universities BE, ETHZ+ZH, GE**



SWISS NATIONAL SCIENCE FOUNDATION

<http://www.snf.ch>

SNF implemented a new tool for funding outreach activities: First call in 2011

**Agora** supports projects that promote **dialogues between researchers and the public** about research results, as well as general questions such as science as a profession, scientific method, opportunities and risks of scientific research, etc.

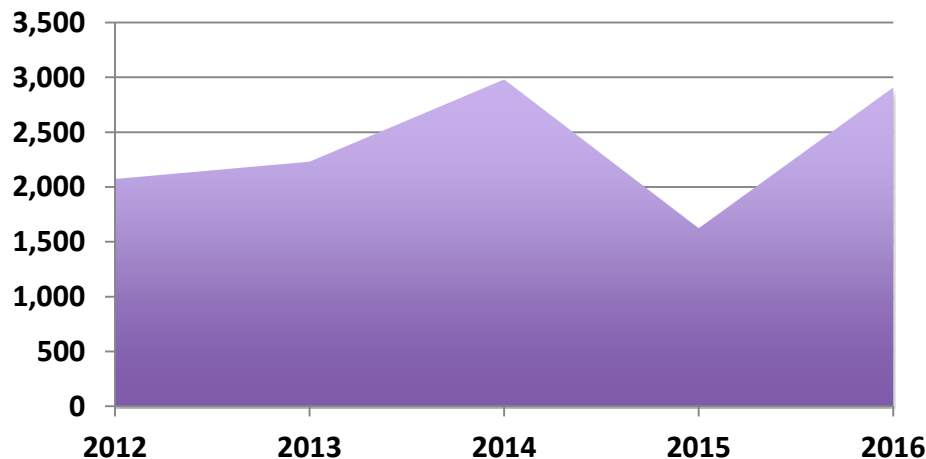
- The responsibility for communicating directly with the public should lie primarily with the researchers.
- Furthermore, the projects must involve the active participation of members of the public.
- This participation might take various forms depending on the target audiences' interests and needs.

**Grants of between CHF 5,000 and CHF 200,000** are awarded for both **small communication formats** and **large-scale initiatives** with more far-reaching goals.

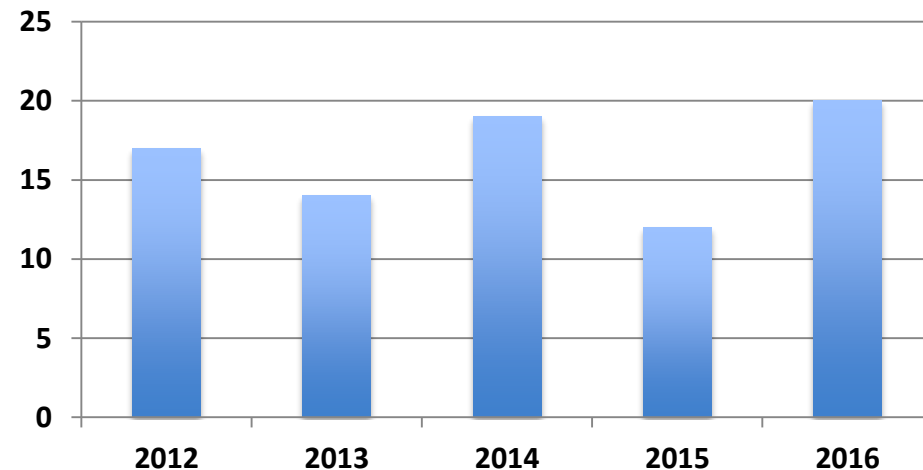
Diverse activities are supported, for example: **discussions and debates**, **hands-on workshops**, **multimedia projects**, **serious games**, **theatre and performances**, **interactive exhibitions**, **education projects with schools**, etc.

**12 to 20 AGORA projects approved per year** – over all by SNF supported fields (SNF finances over 3,400 projects involving 14,000 researchers each year. In 2014, SNF allocated CHF 849 million – AGORA: 3MCHF i.e. 3.5 ‰)

**AGORA Total Budget [kCHF]**



**#AGORA Projects approved**



## AGORA grants are competitive.

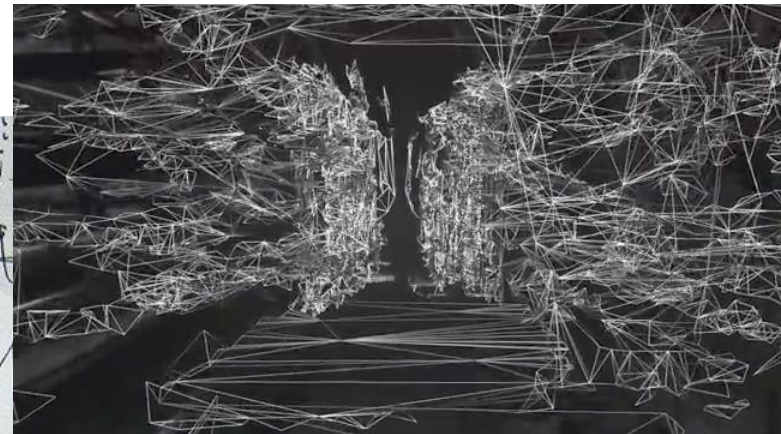
Grants between 5 and 200 kCHF over a maximum of three years  
Average project duration is ~20 months  
No Follow-up grants without substantial new ideas

☞ **Twice a CHIPP member succeeded:**

**Martin Pohl (Uni Geneva)**

**State of the Art - Science and Art in Practice**

creative dialogue between artists and scientists in the scientific community.



## Quantum of Disorder

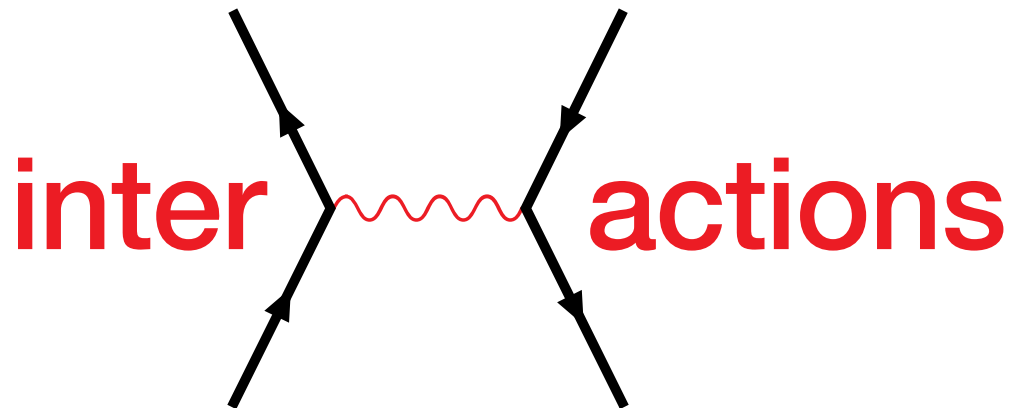
The Swiss artists-in-labs program (ICS/ZHdK) and the Museum Haus Konstruktiv accommodate the topic of «disorder» while focusing on trans-disciplinary approaches in their cooperation project «Quantum of Disorder».

**HPB (Uni Bern)**

**Swiss Particle Physicists in discussion with Society**

Comprehensive long-term program involving all CHIPP members.

**Online and Offline dialogue involving Social Media, Web platform, Podium discussion**



**200 kCHF for Feb 2013 – Feb 2015**

**30 kCHF for Mar 2015 – Oct 2015 (supplementary grant, for the SCNAT bicentennial)**

**AGORA request was successful also because we could build up on a preceding program 'Das Verflixte Higgs' funded with special, direct support from SERI 56kCHF in 2012**



„The key instrument of the projects is the interdisciplinary dialogue in which over 500 Swiss Physicists from the academic institutes with representatives from other such disciplines as Sociology, Theology, Philosophy, Artists, Writers and Politicians will take part.“

(taken from the project proposal of the Swiss National Funds)

**Four high schools, four themes:**

**Rämibühl, Zürich:** „Mit welcher Sprache begreifen wir die Welt?“

**Liceo di Locarno:** „Materia viva o materia morta?“

**Lycée-Collège des Creusets:** „Le Higgs – l'architecte de l'univers ?“

**Neufeld, Bern** „Physik macht – gesund!“



## Four Social Media Cannels: Users Discuss Directly with Particle Physicists

twitter 526 Followers

[www.youtube.com/user/verflixteshiggs](http://www.youtube.com/user/verflixteshiggs)

google+ 126 Followers [google.com/+teilchenphysikCh](http://google.com/+teilchenphysikCh)

facebook 1061 Fans [www.facebook.com/VerflixtesHiggs](http://www.facebook.com/VerflixtesHiggs)

youtube 26 videos with 8778 views

teilchenphysik.ch @VerflixtesHiggs · 22 Std.  
Notre hangout sur la matière noire commence tout de suite !  
[plus.google.com/u/0/events/ct6...](https://plus.google.com/u/0/events/ct6...)

GrandK @GrandK · 22 Std.  
@VerflixtesHiggs Une quest": Que pensez-vous de la représentation littéraire de la matière noire par Philip Pullman? [petitlien.fr/7oie](http://petitlien.fr/7oie)

teilchenphysik.ch @VerflixtesHiggs · 3 Std.  
@GrandK Thanks for your question. Martin Pohl answers: "I have no opinion on esoteric and science fiction literature."

teilchenphysik.ch retweetete  
GrandK @GrandK · 24 Min.  
@VerflixtesHiggs Thanks for the answer and for the hangout! Verry enlightening!

RETWEET  
1

Verflixtes Higgs shared a link - May 21, 2013 2:59 PM

Nach dem Gottesteilchen kommen jetzt die Geisterteilchen. Forscher haben sie "Ernie" und "Bert" genannt. Damit ist auf jeden Fall schon mal bewiesen, dass Physiker Humor haben.

**Neutrino-Forschung: Detektoren könnten kosmische Geisterteilchen aufgespürt haben**  
zeit.de

9 0 13

Verflixtes Higgs shared a link - February 3, 2014 1:43 PM

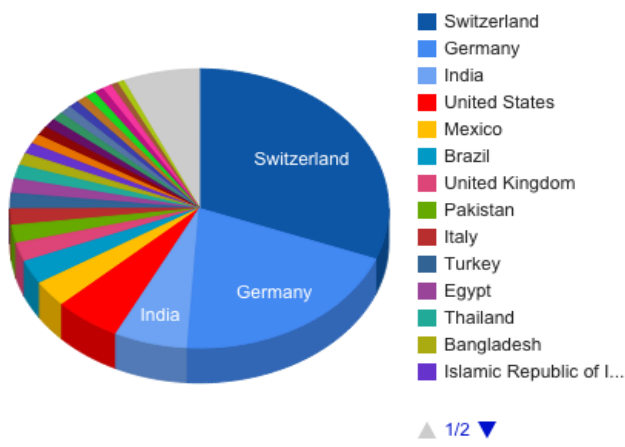
Im Interview mit teilchenphysik.ch erklärt der Physiker Stefan Ulmer, wie die Forscher am CERN es geschafft haben, Antimaterie herzustellen. Mit ihrer Erforschung wollen die Wissenschaftler das Geheimnis des Universums lüften.

**„Ein ganz, ganz dünner Antiteilchenstrahl“**  
teilchenphysik.ch

18 0 2

























### Top countries

From which countries do the 1,061 fans mostly come from?





# Through portraits, reports, interviews, short films and discussions („Hangouts“) posted on the popular video platform „You Tube“ Swiss particle physicists gain a public persona

 <p><b>Warum Physik? Why physics?</b> 1.137 Aufrufe · vor 1 Jahr CC</p>	 <p><b>Mich brems keiner (No one can stop me)</b> 1.011 Aufrufe · vor 2 Jahren CC</p>	 <p><b>Im Interview mit Forschern: PD Dr. Hans Peter Beck, Universität...</b> 820 Aufrufe · vor 2 Jahren</p>	 <p><b>Interview mit Forschern: Angela Büchler</b> 700 Aufrufe · vor 2 Jahren</p>	 <p><b>Auf der Jagd nach der Dunklen Materie</b> 578 Aufrufe · vor 9 Monaten</p>	 <p><b>1. Hangout On Air von teilchenphysik.ch</b> vor 1 Jahr</p>
 <p><b>Im Interview mit Forschern: Ruth Durrer</b> 508 Aufrufe · vor 2 Jahren</p>	 <p><b>Teamwork@CERN -- Fast Forward Science 2013</b> 381 Aufrufe · vor 2 Jahren</p>	 <p><b>Im Interview mit Forschern: Franz Herzog, ETH Zürich</b> 367 Aufrufe · vor 3 Jahren</p>	 <p><b>Interview mit Forschern: Martina Merz</b> 339 Aufrufe · vor 2 Jahren</p>	 <p><b>Intervista con gli scienziati</b> 293 Aufrufe · vor 1 Jahr</p>	 <p><b>Interview mit Forschern -- Christoph Grab</b> 217 Aufrufe · vor 2 Jahren</p>
 <p><b>6th hangout on particlephysics.ch</b> 200 Aufrufe · vor 11 Monaten</p>	 <p><b>Interview avec des chercheurs: Gilles Jobin</b> 196 Aufrufe · vor 2 Jahren</p>	 <p><b>Une approximation artistique dans la physique des particules</b> 191 Aufrufe · vor 10 Monaten</p>	 <p><b>7me hangout de physique des particules: "Matière noire"</b> 173 Aufrufe · vor 10 Monaten</p>	 <p><b>7 things physicists do</b> 171 Aufrufe · vor 1 Jahr</p>	 <p><b>Einladung zum 2. Hangout On Air von teilchenphysik.ch</b> 132 Aufrufe · vor 1 Jahr</p>
 <p><b>5. Hangout On Air von teilchenphysik.ch</b> 132 Aufrufe · vor 1 Jahr</p>	 <p><b>3. Hangout On Air di fisicadelleparticelle</b> vor 1 Jahr</p>	 <p><b>2. Hangout On Air von teilchenphysik.ch</b> vor 1 Jahr</p>	 <p><b>Pourquoi la physique? Why physics?</b> 116 Aufrufe · vor 1 Jahr</p>	 <p><b>4. Hangout On Air von teilchenphysik.ch</b> vor 1 Jahr</p>	 <p><b>Zu Besuch bei MicroboONE</b> 81 Aufrufe · vor 9 Monaten</p>

<https://www.youtube.com/user/verflixteshiggs>

## *Podium discussions*



„Both guests were inspiring.  
The students could use the  
information to choose the right  
course of study.“  
*Larissa Cadorin, Teacher*

„Finally we understand  
how things that we  
learn are applied.“  
*Student comments in  
Feedback book*



Screening of the documentary film  
**„Particle Fever“** at the **Open Air Theaters**  
**in Lucerne and Aarau** –  
introduced with a ‚physics talk‘



Particle physicists bridging with **industry** – event in the Hightech center in Aargau, Brugg



Particle physicists bridging with **art** – event in the Bâtiment d'art contemporain, Geneva

Particle physicists bridging with the **Human Brain Project** – event in Microcity, Neuchâtel



# Interactions - Swiss Particle Physicists in discussion with Society

Double Dialogue with Christian Bosshard/CSEM, Roland Horisberger/PSI, Stefan Spichiger/C-CIT Sensors AG (Event in Cooperation with Hightech Center Aargau)

Double Dialogue with Laura Baudis/Physicist, Luzius Müller/Theologian, Jochen Winter/Lyricist

Screening of 'Particle Fever' at the Open Air Theatre Aarau, Discussion round with CERN-Physicist Lea Caminada

Screening of 'Particle Fever' in the Technorama Winterthur, Double Dialogue with Hans Peter Beck/Physicist, Clara Kulich/Psychologist, Mike Schäfer/Expert in Science Communication (Event in Cooperation with Society of Skeptics Switzerland)

Double Dialogue with Hans Peter Beck/Physicist, Christian Enz/Prof. of Microtechniques EPFL, Richard Frackowiak/Neurologist CHUV

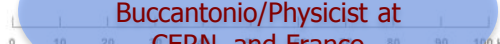
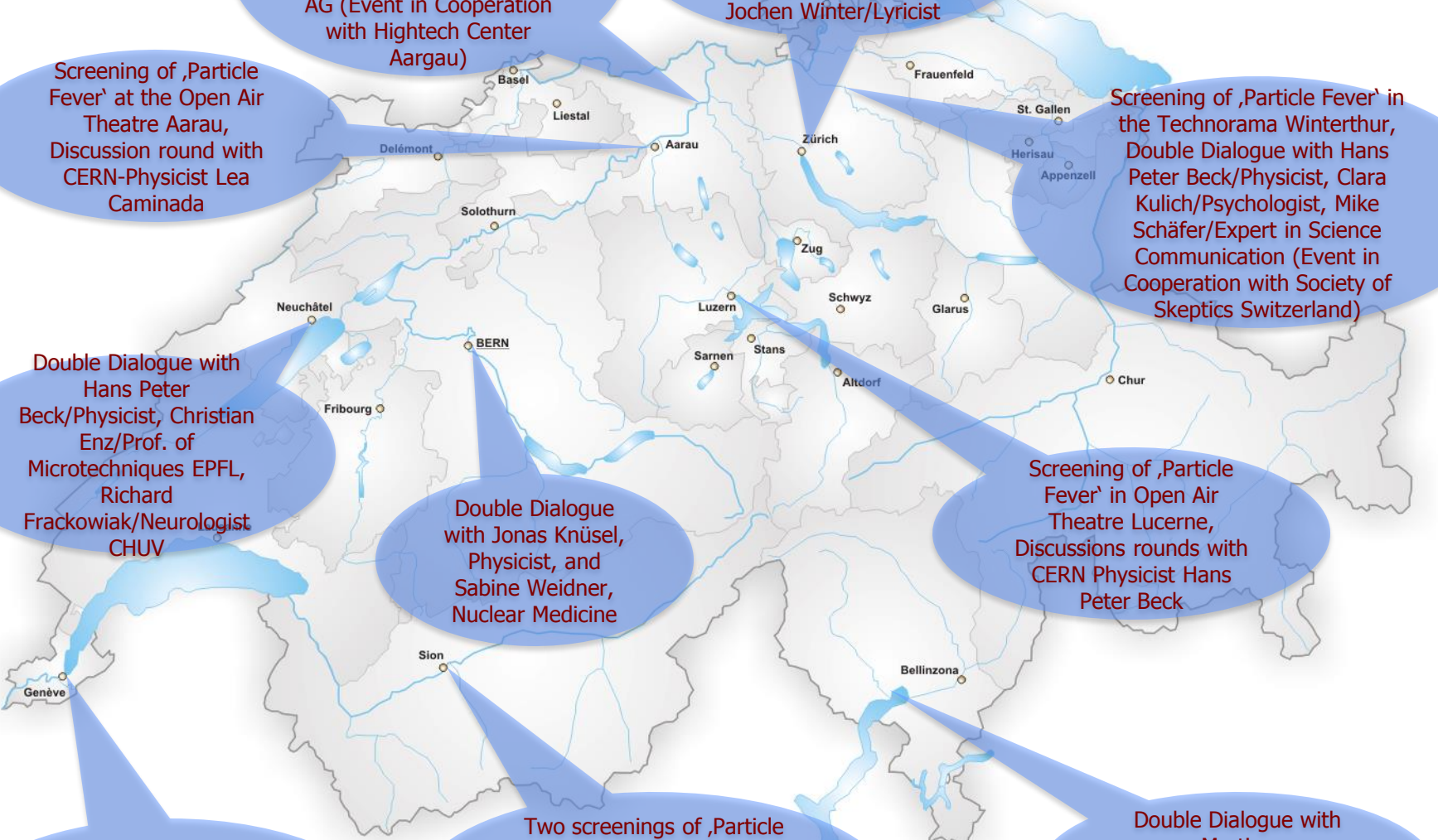
Double Dialogue with Jonas Knüsel, Physicist, and Sabine Weidner, Nuclear Medicine

Screening of 'Particle Fever' in Open Air Theatre Lucerne, Discussions rounds with CERN Physicist Hans Peter Beck

Double Dialogue with Ruth Durrer/Physicist, and Christian Gonzenbach, Sculptor, accompanied by a video portrait of Chr. Gonzenbach

Two screenings of 'Particle Fever' and two debates with Johanna Gramling/Physicist, Michel Siggén/Philosopher, Jean-Blaise Fellay/Theologian, Olivier Schneider/Physicist

Double Dialogue with Martina Buccantonio/Physicist at CERN, and Franco Cavalli/Oncologist



# Various Public Outreach and Strong Media Presence



Presentation at ScienceComm 2014



Participation in the Video Competition „Fast Forward Science“ 2013

Teacher Continuing Education at CERN with a report in „Bildung Schweiz“ 10/2013 (Circulation: 45 000)

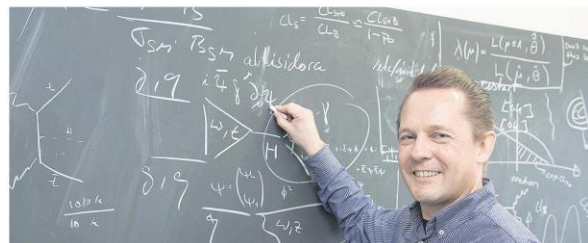
Dienstag, 28. Juli 2015 / Nr. 172 Neue Luzerner Zeitung Neue Zuger Zeitung Neue Nidwaldner Zeitung Neue Obwaldner Zeitung Neue Urner Zeitung

Kanton Luzern

## «Physik sucht und findet Spielregeln»

**WISSENSCHAFT** Weshalb sollten wir uns mehr mit Naturwissenschaften beschäftigen? Ein Top-Physiker mit Luzerner Wurzeln bringt es auf den Punkt.

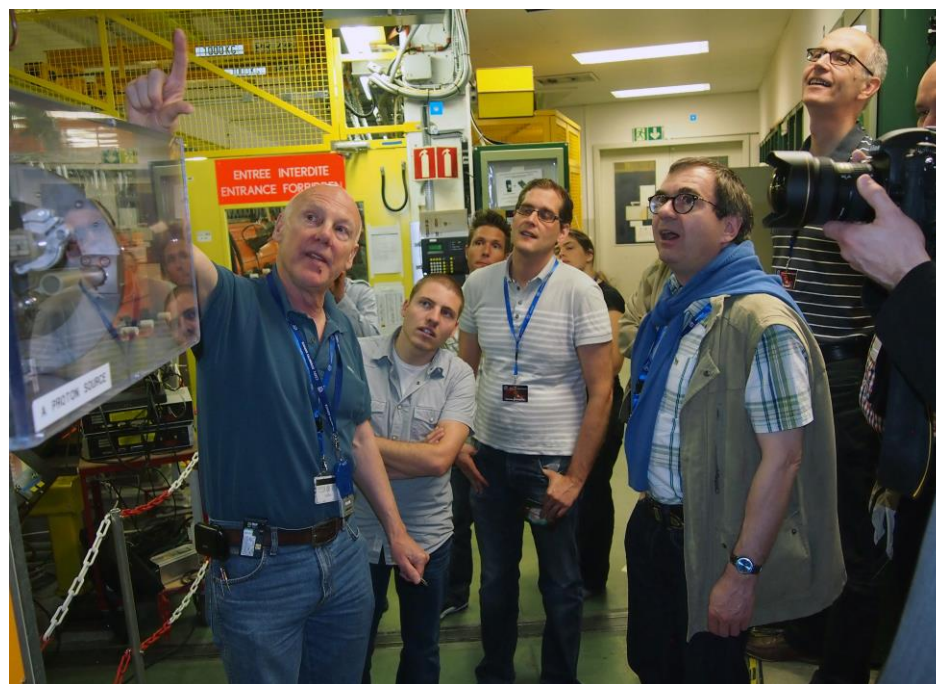
**INTERVIEW** ISMAIL OSMAN  
ismail.osman@luzernerzeitung.ch  
Forscher aus der ganzen Welt arbeiten bei der Europäischen Organisation für Kernforschung (Cern), die sich bei Meyrin im Kanton Genf befindet. Mit Hilfe



Interview in the Neuen Luzerner Zeitung (Circulation: 80 000)

### Ticketverlosung

Am 9. August wird im O Kino bei der Aula Alpenquai der Dok-Film «Particle Fe zeigt. Cern-Physiker Hans P ist vor Ort und führt in den Wir verlosen 5-mal 2 Tiel Vorführung startet um 21.1



„Physik is like music, a basic need of human beings.“

R. Durrer,  
Physicist

„Art and science want to go beyond the known.“

Chr.  
Gonzenbach,  
Sculptor

„Only basic research like that done at CERN leads to really big innovations.“

R. Horisberger,  
Physicist

„Physics will never be able to give reasons for its existence.“

M. Siggen,  
Philosopher

„For too long, science was ignored by poets as a source of creation.“

L. Baudis,  
Physicist

„First since the split the Catholic Church does fight so rigorously against the doctrine of nature.“

J.-B. Fellay,

„The knowledge gained at CERN can't be taken back and will forever endure.“

H.P. Beck,  
Physicist

„Physics is under great pressure to legitimize itself to the outside world.“

M. Schäfer,  
Journalism Expert

„I can not cure patients as well as a doctor, but I can help them.“

J. Knüsel,  
Medical Physicist

„Those who can not decide between physics, medicine and chemistry are welcome here.“

S. Weidner,  
Nuclear Medicine

„Women at CERN are also far from being taken seriously.“

J. Gramling,  
Physicist

„Big Science is also a political challenge – as was the Apollo mission during its time.“

R. Frackowiak,  
Human Brain  
Project

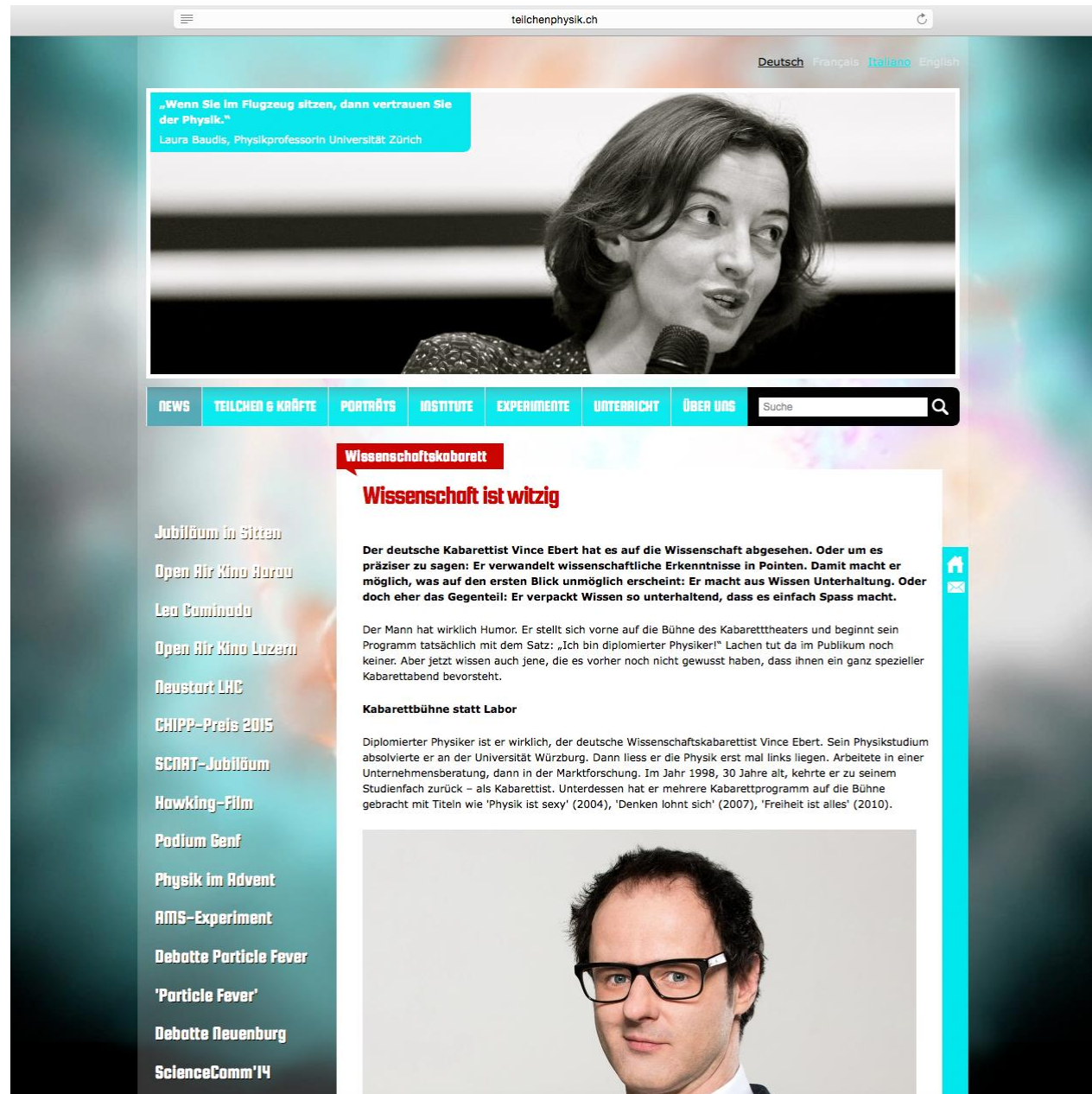
Web platform

**teilchenphysik.ch**

informing the public profoundly about the latest news from Swiss particle physics' research labs.

Providing basic knowledge and didactic materials for teachers and students...

...and not just in German, but also in French, Italian and English.



The screenshot shows the website interface for teilchenphysik.ch. At the top right, there are language options: Deutsch, Français, Italiano, and English. Below this is a featured article with a quote from Laura Baudis, a physics professor at the University of Zurich, about trusting physics while flying. The main navigation bar includes links for NEWS, TEILCHEN & KRÄFTE, PORTRÄTS, INSTITUTE, EXPERIMENTE, UNTERRICHT, and ÜBER UNS, along with a search bar. A sidebar on the left lists various topics such as Jubiläum in Sitten, Open Air Kino Barau, and Lea Cominada. The main content area features an article titled 'Wissenschaftskabarett' (Science Cabaret) by Vince Ebert, discussing the humor and accessibility of science. Below the article is a portrait of Vince Ebert.



Contributions  
from many  
CHIPP members  
contributing  
ideas, energy  
and enthusiasm  
to help...

interactions ...become successful.



A diagram showing two incoming particles (represented by white arrows) colliding at a central point, with a wavy line representing a mediating particle (like a photon or gluon) between them, and two outgoing particles (represented by white arrows) moving away from the collision point.

Made possible by generous support from  
Agora programm of the Swiss National  
Science Foundation and by Swiss  
Academy of Sciences. The pre project  
was kindly supported by the State  
Secretariat for Education, Research and  
Innovation

**FNSNF**  
FONDS NATIONAL SUISSE  
SCHWEIZERISCHER NATIONALFONDS  
FONDO NAZIONALE SVIZZERO  
SWISS NATIONAL SCIENCE FOUNDATION

**sc | nat**  
Swiss Academy of Sciences  
Akademie der Naturwissenschaftler  
Accademia di scienze naturali  
Académie des sciences naturelles

**S**chweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
  
Eidgenössisches Departement für  
Wirtschaft, Bildung und Forschung WBF  
Staatssekretariat für Bildung,  
Forschung und Innovation SBFI

**CHiP**  
Swiss Institute of  
Particle Physics  
an Association according to Swiss law

Only possible with the **professional help from two science journalists**

- Website: <http://www.teilchenphysik.ch> and in F, I, E
- Social Media: Facebook, Google+, Youtube
- Videointerviews of CHIPP members
- 77 news articles; many are translated to E,F,I
- Poster session at high schools
- Teachers education



**Benedikt Vogel**



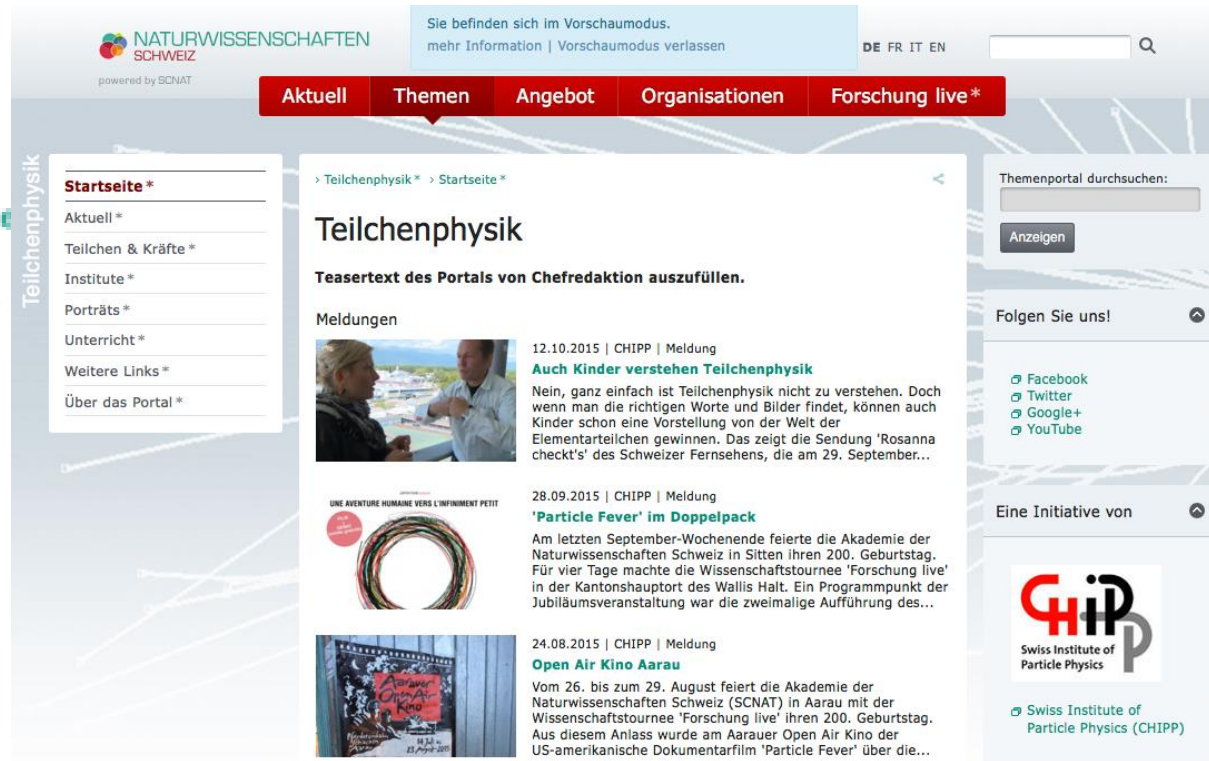
**Christiane Plass**

**AGORA Interactions is now finished.**

**A follow-up request failed as not substantially different from Interactions.**

☞ **But we would like to continue being active on the web, on social media, organizing podium discussions, be active with teachers...**

Online in next few days....



The screenshot shows the SCNAT theme portal interface. At the top, it says 'NATURWISSENSCHAFTEN SCHWEIZ powered by SCNAT'. A navigation bar includes 'Aktuell', 'Themen', 'Angebot', 'Organisationen', and 'Forschung live\*'. The main content area is titled 'Teilchenphysik' and features a 'Teasertext des Portals von Chefredaktion auszufüllen.' Below this are three news items: 'Auch Kinder verstehen Teilchenphysik' (12.10.2015), ''Particle Fever' im Doppelpack' (28.09.2015), and 'Open Air Kino Aarau' (24.08.2015). A sidebar on the left lists 'Startseite\*', 'Aktuell\*', 'Teilchen & Kräfte\*', 'Institute\*', 'Porträts\*', 'Unterricht\*', 'Weitere Links\*', and 'Über das Portal\*'. On the right, there are search and social media options.

SCNAT is supportive to our activities and help us to continue the web-portal, which is now a theme portal within the SCNAT web portal.

**Benedikt Vogel** will be able to write articles showcasing interdisciplinary of particle physics research, activities, results and its applications in/to society.

Also some articles needed from CHIPP members to keep the portal alive !

**10 kCHF for 2016 !**

## The Swiss EPPCN delegate was vacant from March 2014 – Dec 2015

- ❑ Not easy to find a person to communicate on behalf of CHIPP (and not on behalf of his/her home institute, especially when the person is a communicator from a communication office in a participating institute.)
  - ❑ Free-lance journalists is also not ideal, as temptation to publish material still under embargo, as such material is often discussed within EPPCN.
  - ❑ With supplementary support granted by SERI Marc Türler (CHIPP Administrator took this responsibility at the start of 2016.
- ☞ This positive development improves the communication channels between the CERN press office and the communication offices of Swiss universities and institutes, as well as with the media and the general public.



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 this site  All CERN

Education

Teacher Programmes | Teaching Resources | Visit CERN



**Kurse 2015**  
 27.-28. November 2015

**Archiv**  
 8.-9. November 2013  
 7.-8. Juni 2013

**National contacts**  
 Andreas Schopper  
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**Swiss Teacher Programme**

Im Rahmen seiner Nationalen Lehrerprogramme organisiert das CERN in Zusammenarbeit mit der Schweizerischen Physikalischen Gesellschaft (SPG) ein auf Schweizer Physiklehrer zugeschnittenes Fortbildungsprogramm. Das nächste Programm findet am 27. und 28. November 2015 statt. Details zur Anmeldung entnehmen Sie bitte dem Link unter dem Kursangebot in der linken Spalte.

[http://education.web.cern.ch/education/Chapter1/Page3\\_CH.html](http://education.web.cern.ch/education/Chapter1/Page3_CH.html)

**Report and advert in Swiss Physical Society magazine and in 'Bildung Schweiz' a specialized magazine for teachers.**

## Lehrerfortbildung: 18 Deutschschweizer Lehrer im Herz von CERN

Christine Plass (Text und Bilder)

Im Rahmen der Nachwuchsförderung setzt sich die SPG für die Lehrerfortbildung im Gebiet der Physik ein. Im Frühjahr wurde aus aktuellem Anlass, im Zusammenhang mit der Higgs-Entdeckung am CERN, eine Lehrerfortbildung mit Schwerpunkt Teilchenphysik zusammen mit [teilchenphysik.ch](http://www.teilchenphysik.ch) durchgeführt. Anfang Juni 2013 reisten 18 Lehrerinnen und Lehrer aus der Deutschschweiz nach Genf. Der Weiterbildungstag am CERN vermittelte ihnen Anschauungsmaterial und Experimente, um Hochenergiephysik zu unterrichten.

"Das ist eine einmalige Gelegenheit, den Detektor zu besichtigen", erkannten acht Physiklehrer der Kantonsschule Zug, als ihr Kollege Markus Schmidinger ihnen von seiner Einladung ans CERN erzählte. Schmidinger hatte an einer Fortbildung zu Teilchenphysik in Bern teilgenommen und war zur Folgeveranstaltung ans CERN nach Genf eingeladen worden. Höflich fragte er an, ob seine Kollegen wohl mitkommen dürften? Initiator Hans Peter Beck, Physiker am CERN und Dozent der Uni Bern, überlegte nicht lange. Er konzipierte sein Programm so um, dass es auch ohne Vorbildung verständlich war. Insgesamt nahmen 18 Lehrerinnen und Lehrer aus der Kantonsschule Ausserschwyz,

leim eines der faszinierendsten Forschungszentren der Welt kennen zu lernen.



Im Herz von CERN, der Protonengasse. Am Modell erklärt Mik Storz, wie dem Wasserstoffgas hier die Protonen entzogen werden, die dann im Large Hadron Collider (LHC) miteinander kollidieren.

<http://www.teilchenphysik.ch/moderne-physik-fuer-den-schulalltag>

<http://www.teilchenphysik.ch/im-herz-von-cern>

**The CERN Swiss Teachers Programme is constantly difficult to realize.**

- ❑ Despite of collaboration with the Swiss Physical Societies,
- ❑ Despite of interacting with the teachers societies in German, French and Italian speaking Switzerland
- ❑ Despite of involving the federal teachers structure WBZ/CPS
- ❑ Despite of financial contributions to subsidize travel money for teachers

**Too few teachers apply, such that the Swiss Teachers programme had to be cancelled in 2014 & 2015.**

**Few numbers from CERN:**

Participants to the **CERN High School Teachers Programme** since **1998**:  
**669 Teachers of which 10 are from CH**

Participants to the **CERN Swiss Teachers Programme** since **2006**:

**34 CH teachers in 2 German speaking programmes**  
**76 CH teachers in 3 French speaking programmes**

**Worldwide: 7319 Teachers in CERN national teachers programme since 2006**

## With a successful outreach programme running, media get interested

**ZAMBO** SRF

Ich bin smurf02, und ich habe etwas auf die Pinnwand geschrieben.

Online 16 Mitglieder

Zurück

**Woraus besteht die Welt?**

**Rosanna geht ins Physik-Forschungszentrum CERN. Schau dir an, was sie da alles erlebt.**

Rosanna besucht das Physik-Forschungszentrum CERN. Da werden die winzigsten Teilchen, aus denen unsere Welt besteht, erforscht. Rosanna zeigt dir die verschiedenen Stationen des Forschungszentrums und erklärt dir, was die Forscher da machen.

Essen in der Schule

«Zambo»-Mitglied Schmetterling14 möchte sich für vegetarisches Essen in der Schule einsetzen. Sie hat einen Brief an den Schuldirektor geschrieben. Hast du noch andere Tipps, wie ihr das gelingt?

DIREKT ZUM BLOG

FOLGE UNS AUF INSTAGRAM

Video bei Facebook teilen

**Children programme on Swiss national TV**

**About CERN and the basic building blocks of matter**

# Conclusions

**Outreach activities** within science are intended to inform the **political platform**, the **informed public**, or the **potential young physicist**.

**With minimal and budget, still a lot can be achieved:**

- ❑ **Giving talks** to interested groups, open universities, schools, companies, societies, etc.
- ❑ **Participating in Coordinated outreach** done at/by universities (cantonal and federal) and laboratories (CERN and PSI)
  - ❑ Open day events, Bachelor/Freshers information Days

**With real money, professionals can be hired** to enrich outreach to unprecedented levels enabling a true and broad dialogue with society ← with many CHIPP members directly implied.

**Involving teachers** and bringing them to CERN is notoriously difficult. But many motivated teachers active with their school classes to visit CERN

**Outreach talks at schools** are important and indeed many CHIPP members do go to schools to give talks.



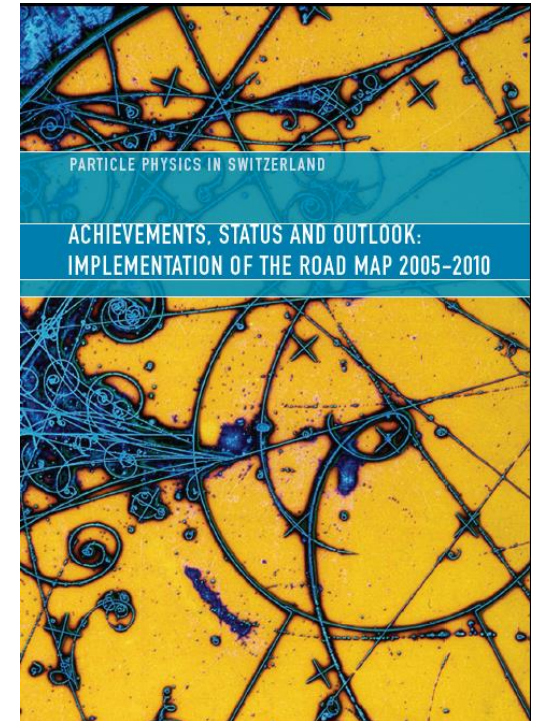
# Recommendation 10 – Outreach

[http://www.chipp.ch/documents/Achievements\\_RoadMap2005-2010.pdf](http://www.chipp.ch/documents/Achievements_RoadMap2005-2010.pdf)

**CHIPP recommends** that Cantonal and Federal funding authorities require and allow that **a small fraction of each research grant be reserved for outreach purposes.**

It is further recommended that both authorities ensure **that at least one research physicist** in each Swiss physics institute has **a primary responsibility towards the development of outreach activities.**

To seed these efforts as far as particle and astroparticle physics are concerned, **CHIPP recommends central funding of one full-time equivalent during an initial phase, followed by continuous funding at the level of half a full-time equivalent.**



Achievements, Status and Outlook:  
Implementation of the Road Map 2005-2010