Why physics?

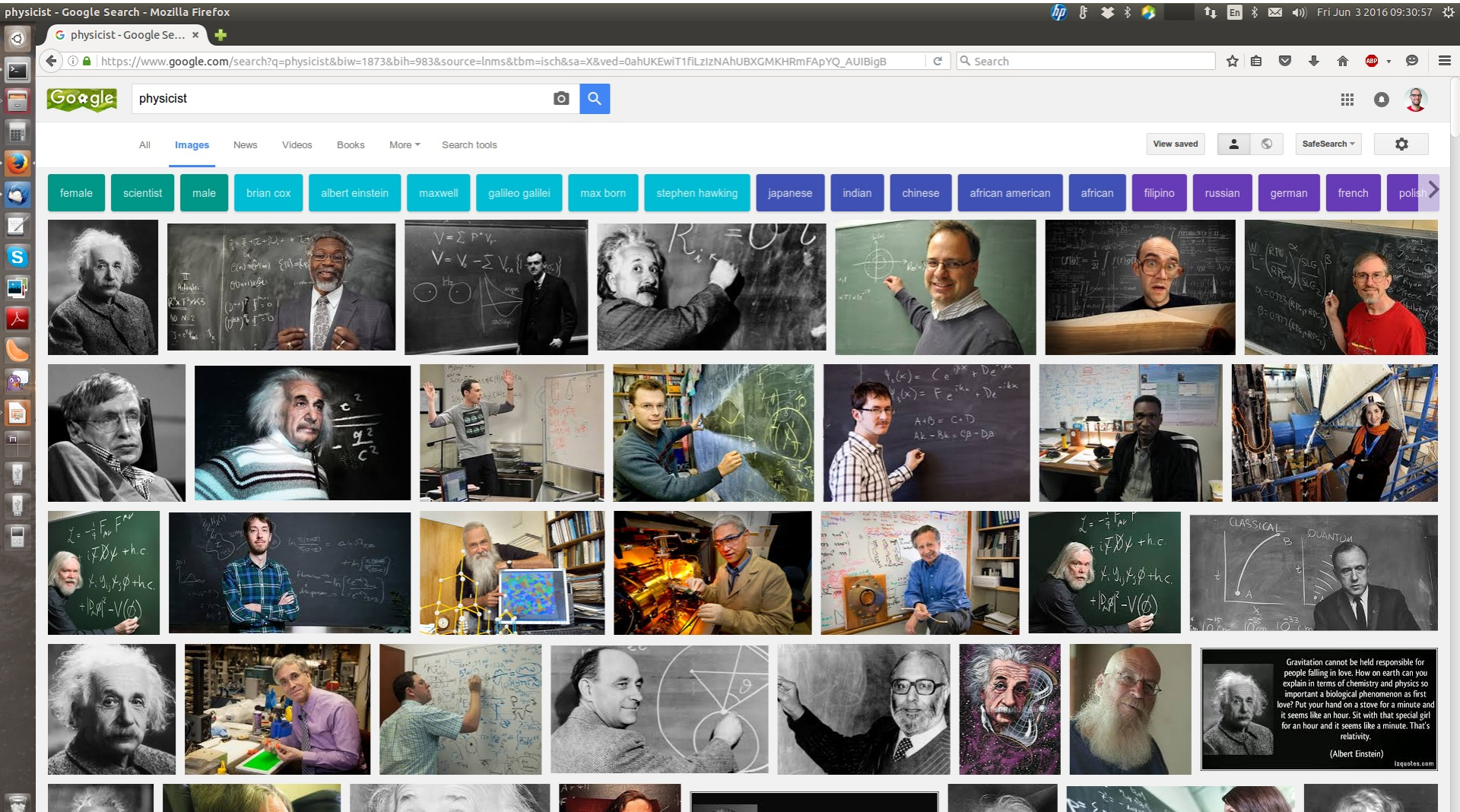
June 2016

Philip von Doetinchem

Department of Physics & Astronomy
University of Hawai'i at Manoa
philipvd@hawaii.edu
http://www.phys.hawaii.edu/~philipvd

What is a Physicist?

→ google search

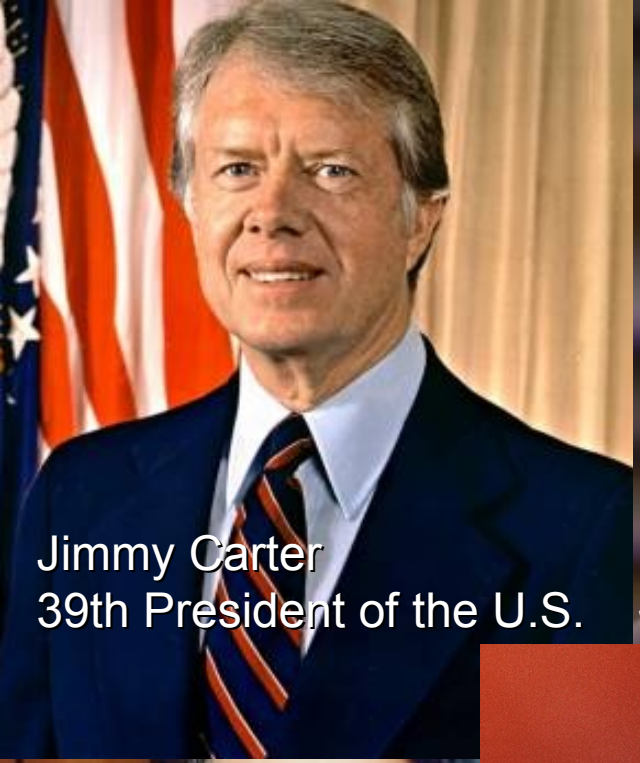



the BiG BANG THEORY
Spigot

A lot of normal(?) people are into Physics.

Everybody likes to understand how stuff works, don't you think so?

Major requirement: *curiosity*


Jimmy Carter
39th President of the U.S.

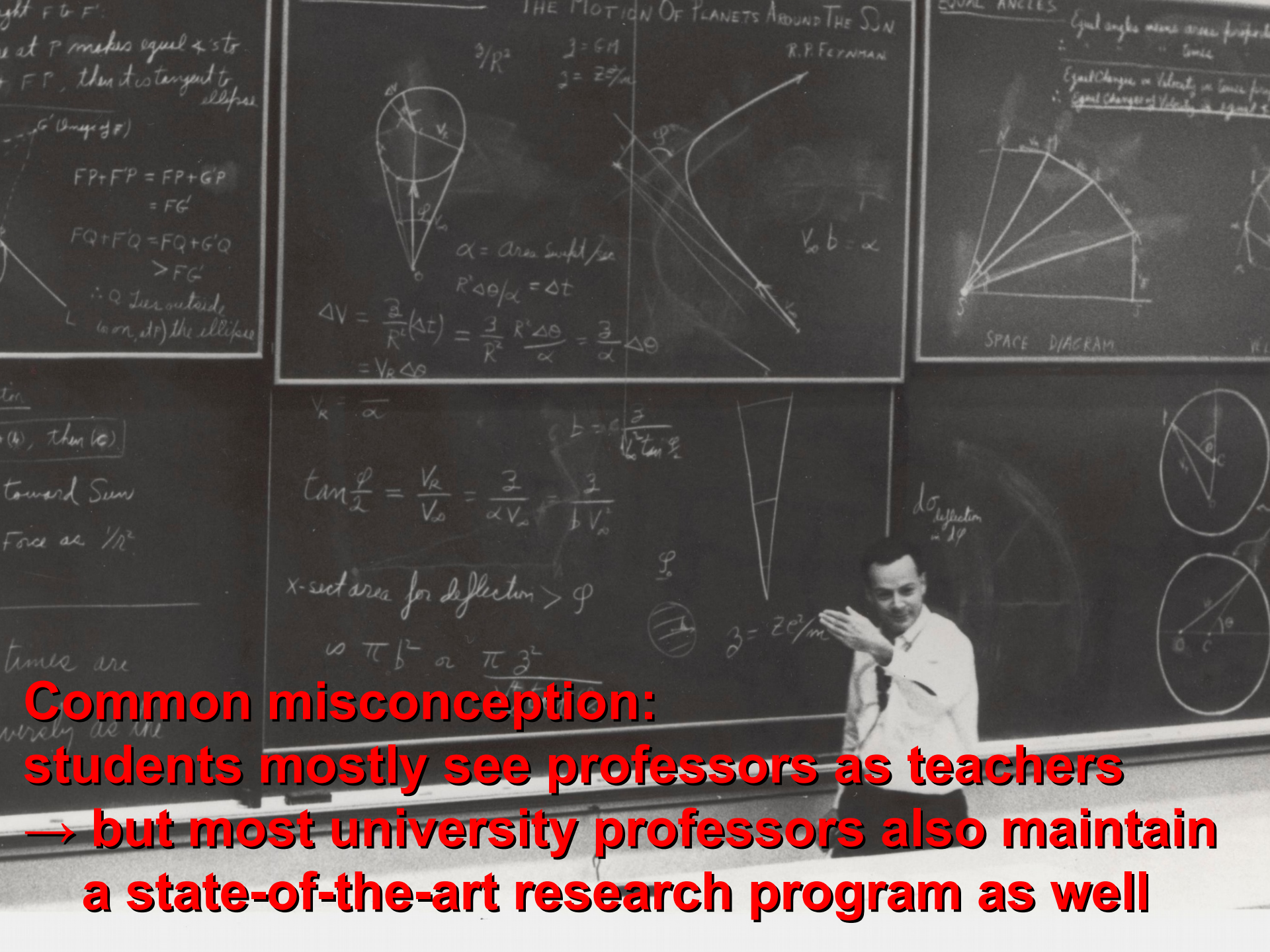

Elon Musk
SpaceX, Tesla, Paypal


Sally Ride
youngest astronaut


Carl Sagan
science
communicator


Brian May
Queen guitarist


Angela Merkel
German Chancelor



Common misconception:
students mostly see professors as teachers
→ but most university professors also maintain a state-of-the-art research program as well

Excursion in high school to DLR (German NASA)
→ saw early work on Rosetta (comet lander)

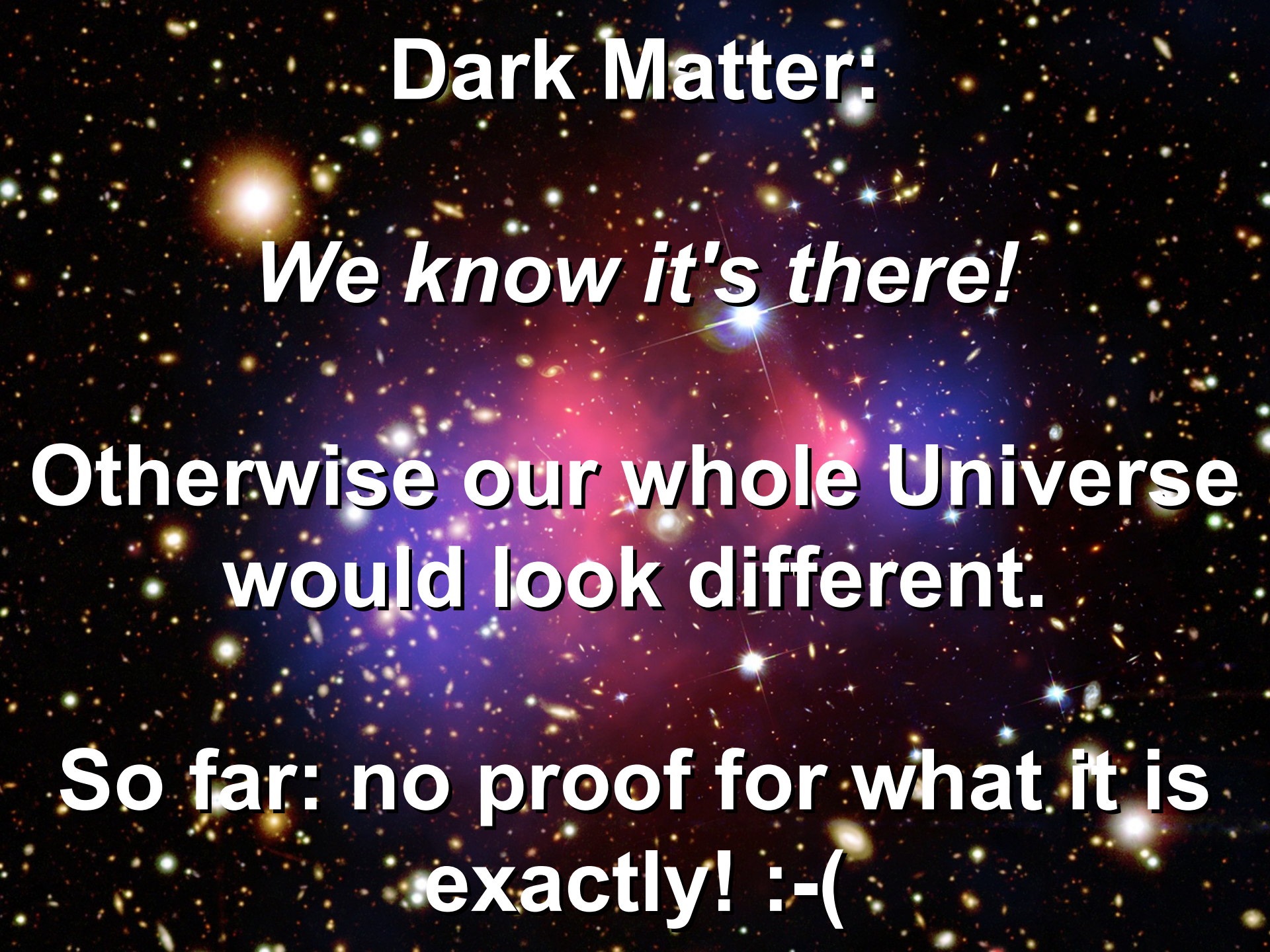
Excursion to CERN and DESY → particle physics

What keeps me going

stuff we know

stuff we don't know:
dark matter

→ makes me curious!

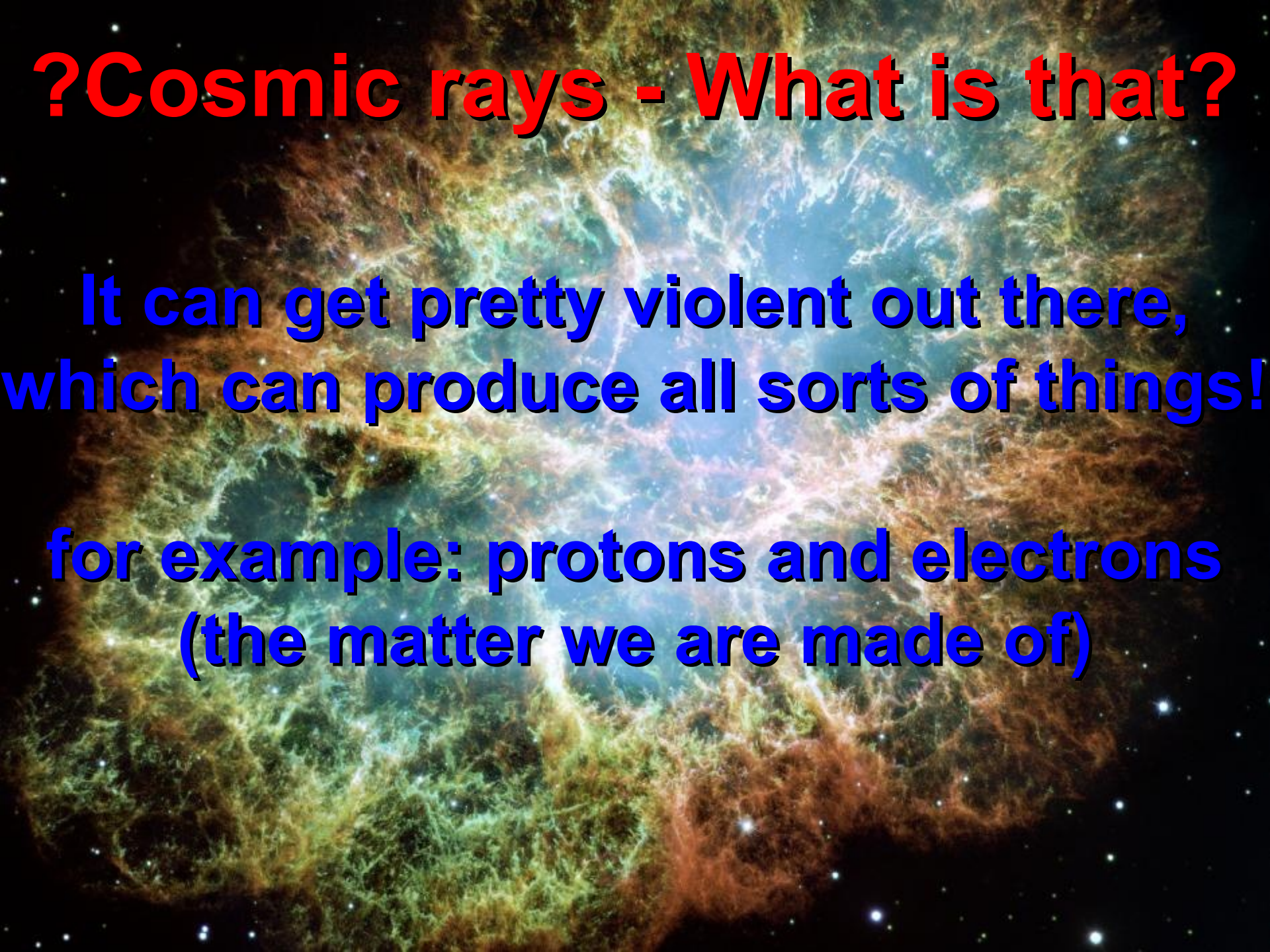

Dark Matter:
We know it's there!
Otherwise our whole Universe would look different.
So far: no proof for what it is exactly! :-(

Now what?

Dark Matter

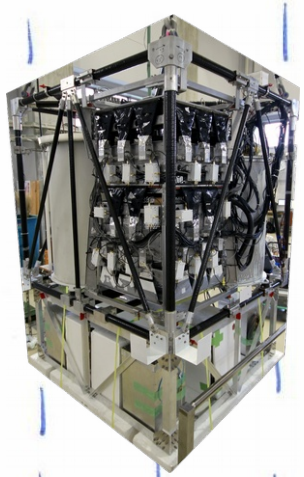
Why not ask somebody who has been there and runs fast?

Runners telling us about Dark Matter could be *cosmic rays*


?Cosmic rays - What is that?
It can get pretty violent out there,
which can produce all sorts of things!
for example: protons and electrons
(the matter we are made of)

Where to put such an experiment?

Imagine you wanted to collect rain...



too dry


The atmosphere acts as a roof for cosmic rays
atmosphere
Which is good to stay healthy, but bad to measure cosmic rays

when you are hiking at high altitudes

→ you are exhausted much faster

→ because there is less air to breathe

→ *roof for cosmic rays is getting weaker*

Experiment *in Space*

AMS-02 on the launchpad

Integration of AMS-02 at CERN with STS-134 astronauts

Space is great, but super expensive ($1,000,000 for 2lbs)

use balloons

that go up very very high

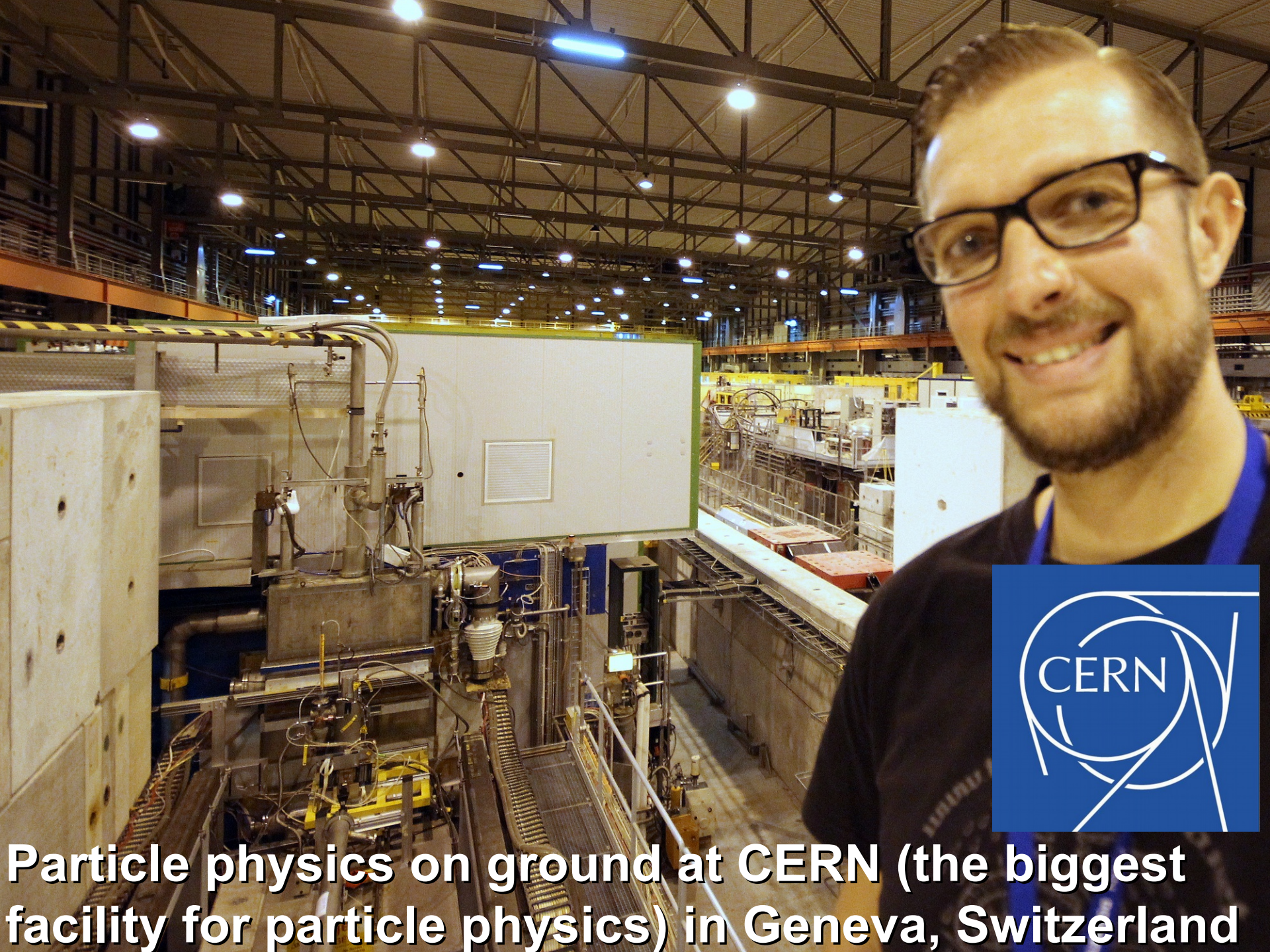
→ 25 miles above ground

GAPS balloon experiment launched from Japan

A lot of hands on work with all sorts of different tasks!

Playground for big kids


GAPS
GENERAL ANTIPARTICLE SPECTROMETER
NASA • JAXA
2012:06:03 02:29:14



Particle physics on ground at CERN (the biggest facility for particle physics) in Geneva, Switzerland


Lots of open questions out there!
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