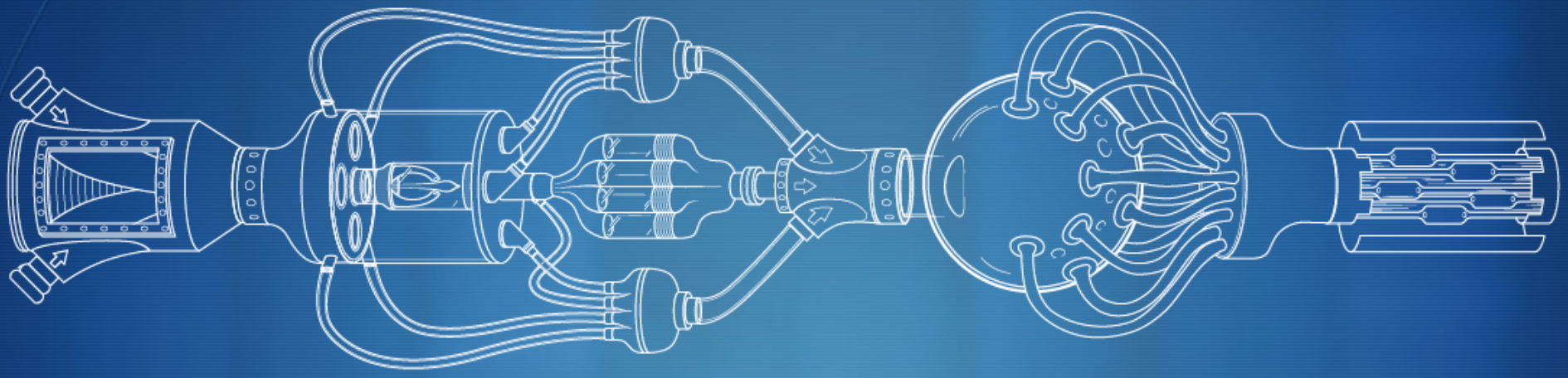


Virtual Atom Smasher

Ioannis Charalampidis,
S'Cool LAB, CERN, 2015

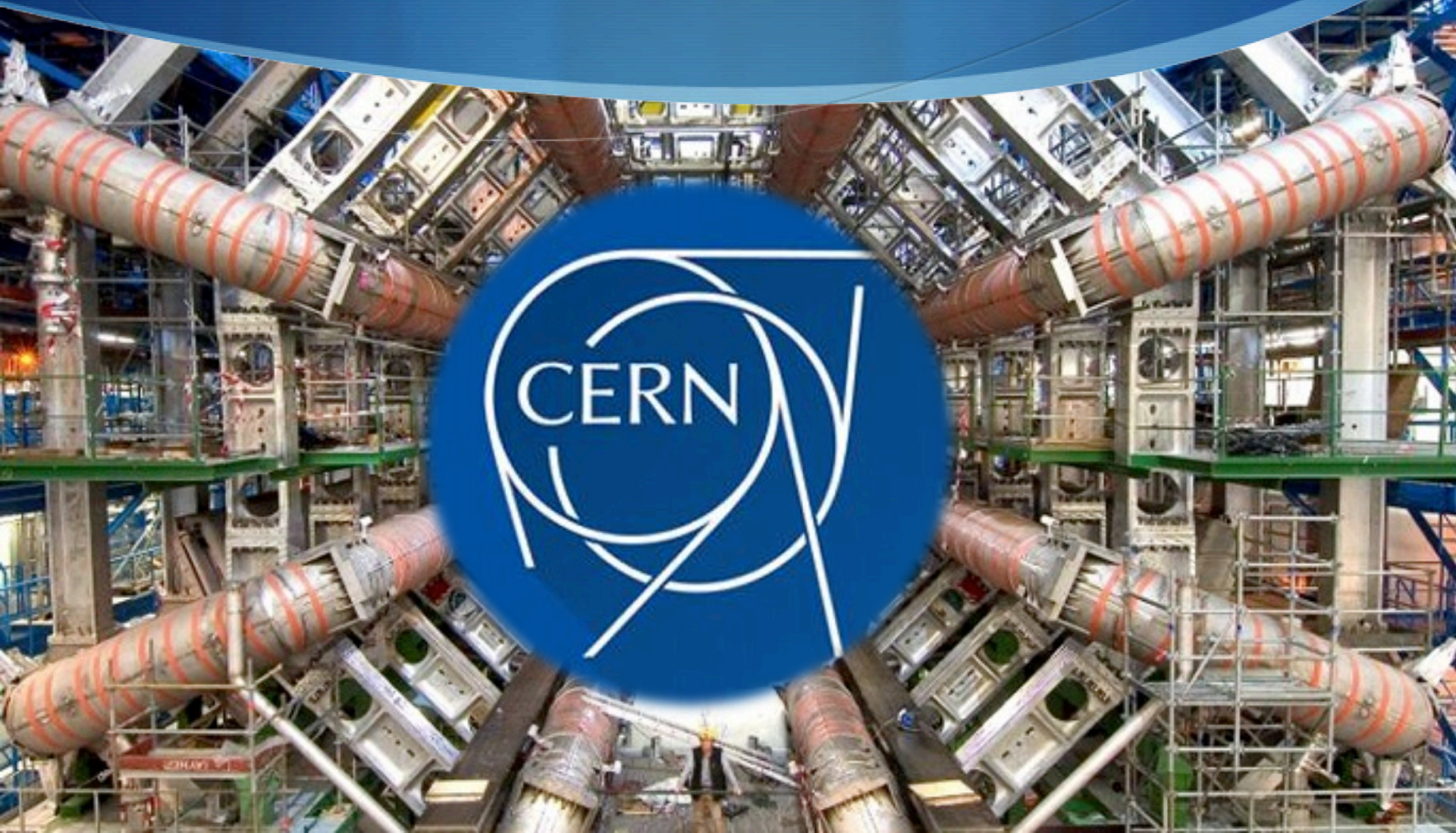
citizen cyberscience centre

citizen cyberLab

SEVENTH FRAMEWORK PROGRAMME

CERN

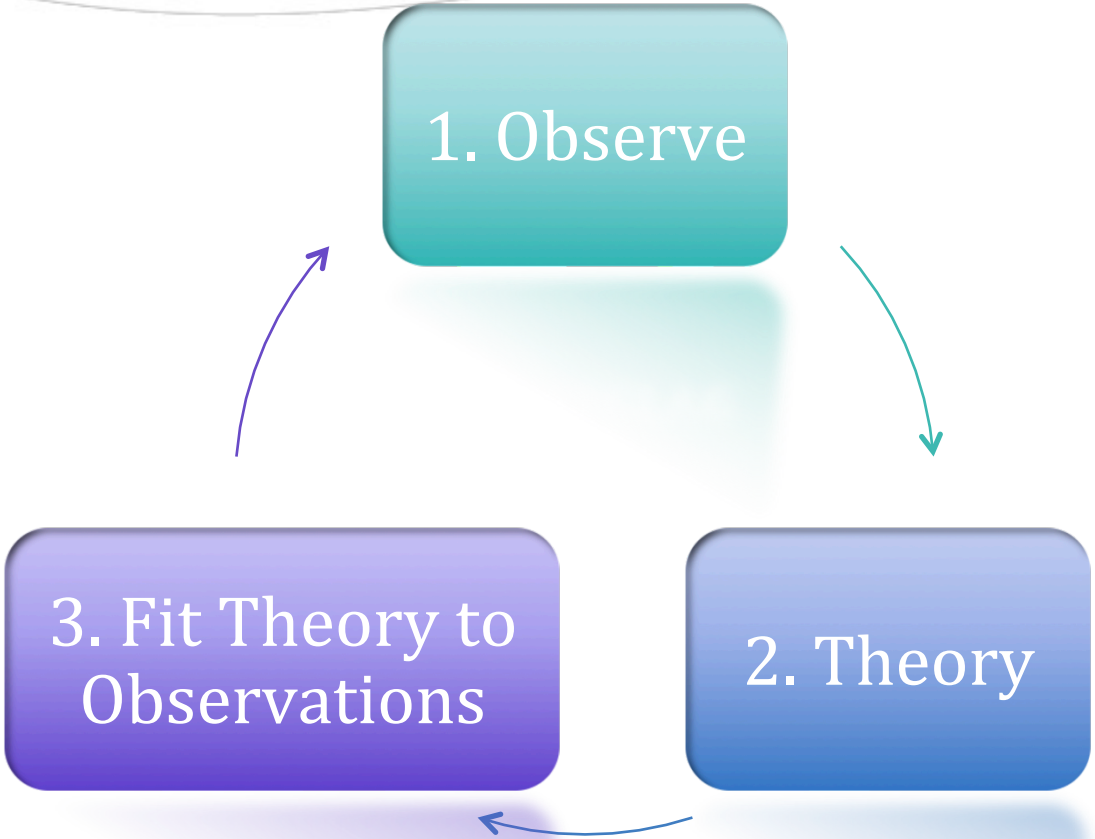
Welcome!



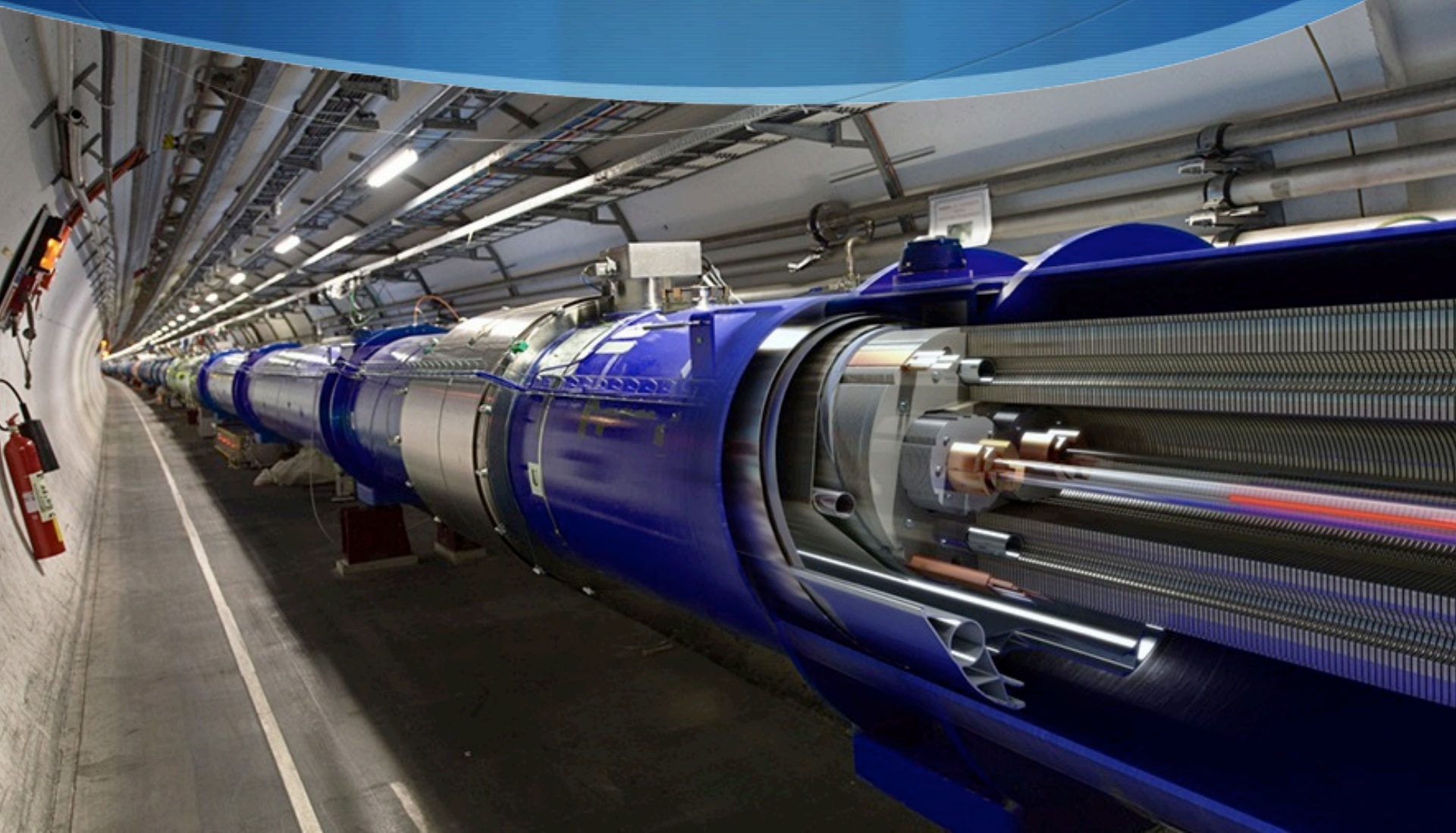
We do *Research*

"What is matter composed of?"

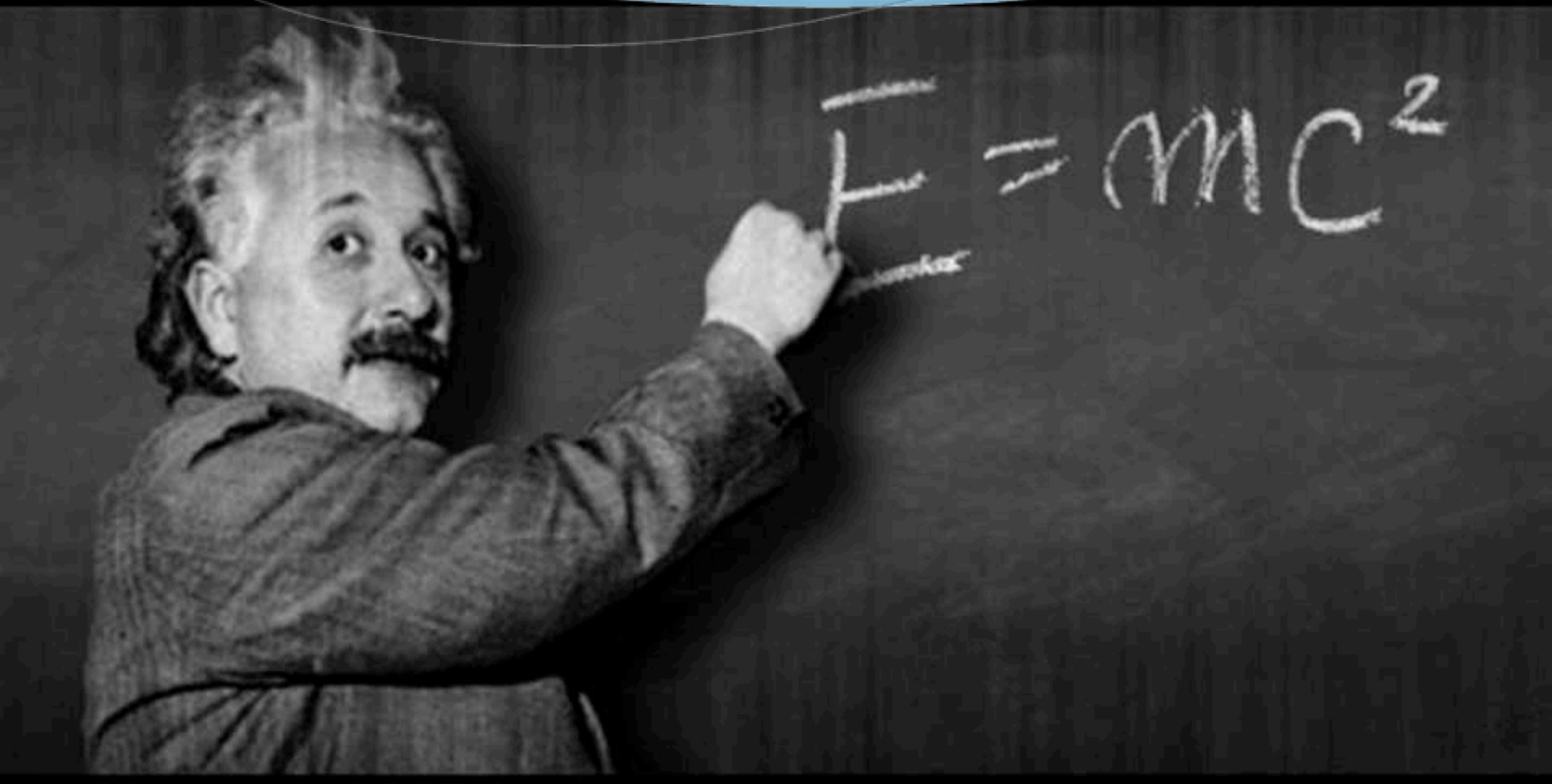
Scientific Cycle



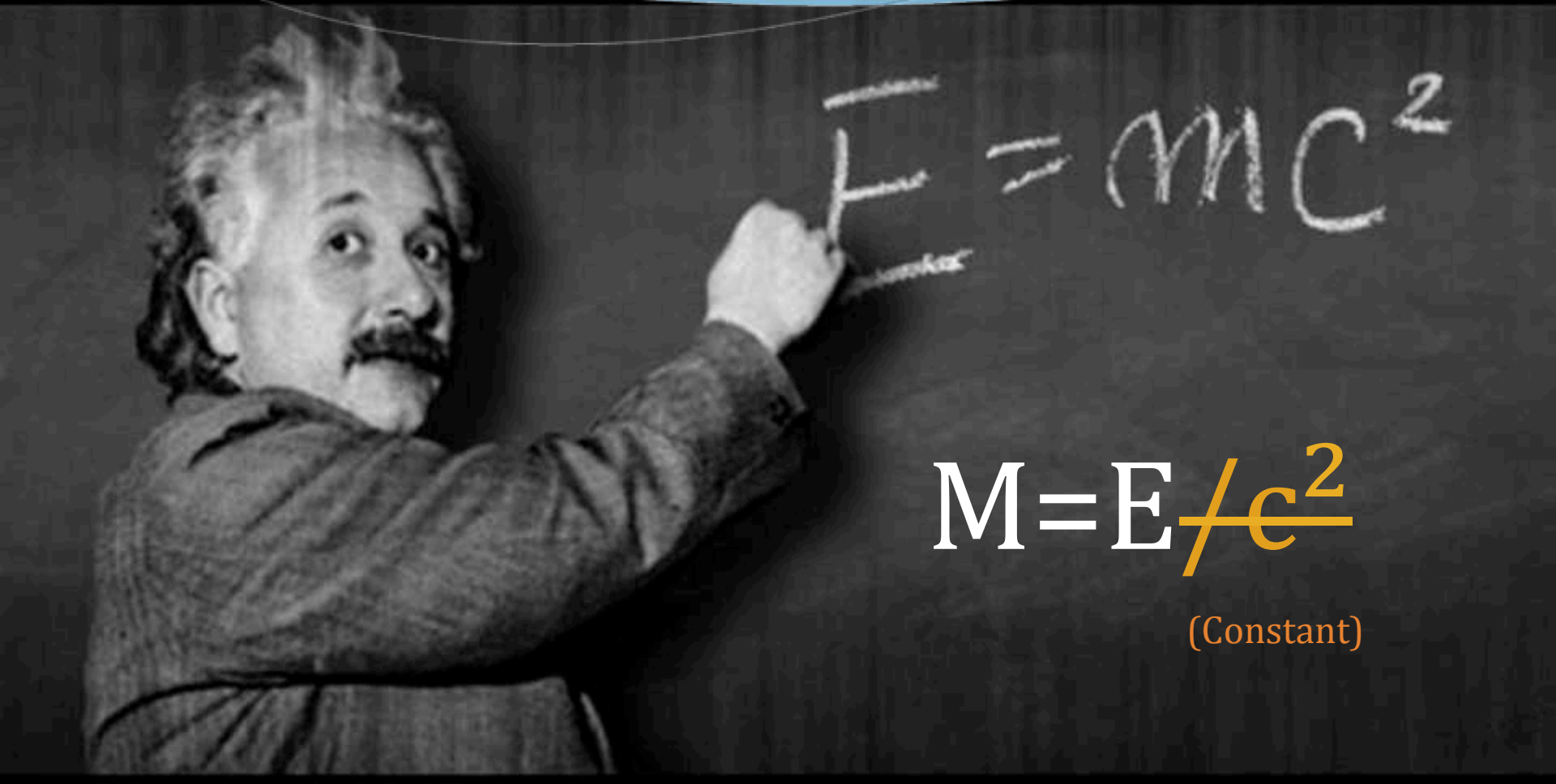
1. Collisions = Observe



Remember this guy?



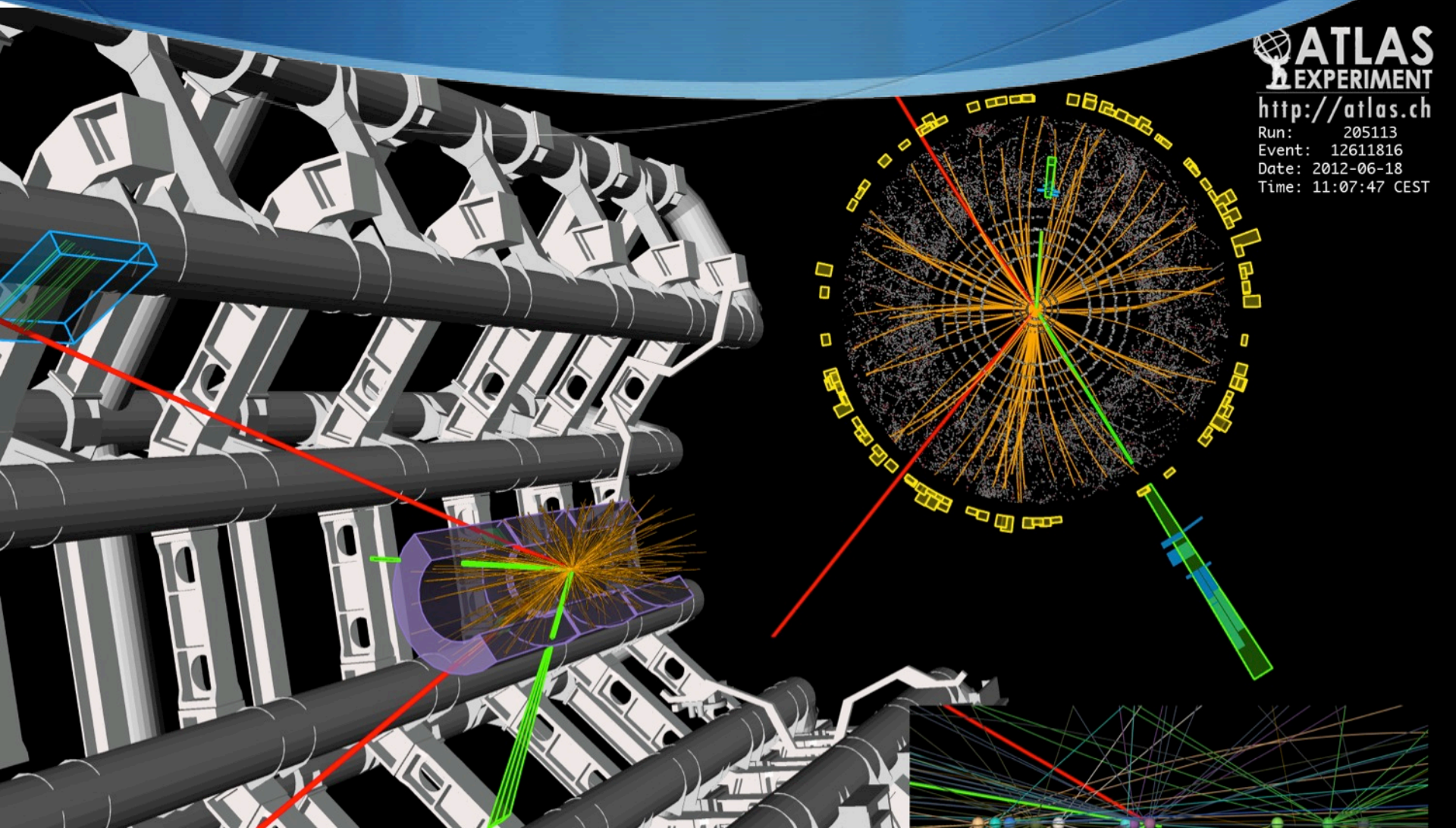
Remember this guy?



$M = E \not{/} \not{c}^2$

(Constant)

An “Event”

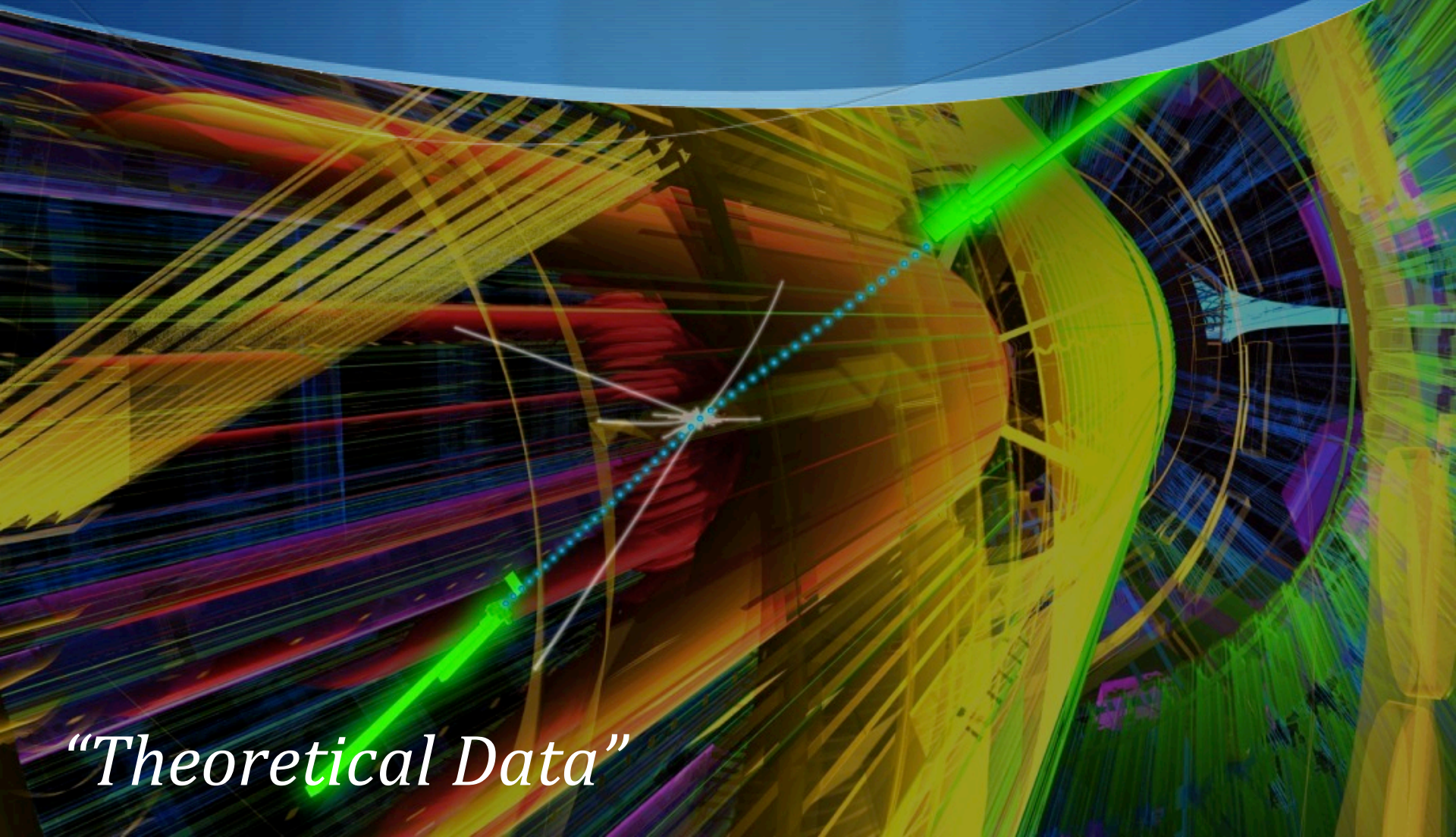

ATLAS
EXPERIMENT
http://atlas.ch
Run: 205113
Event: 12611816
Date: 2012-06-18
Time: 11:07:47 CEST

Store the observations

"Reference Data"

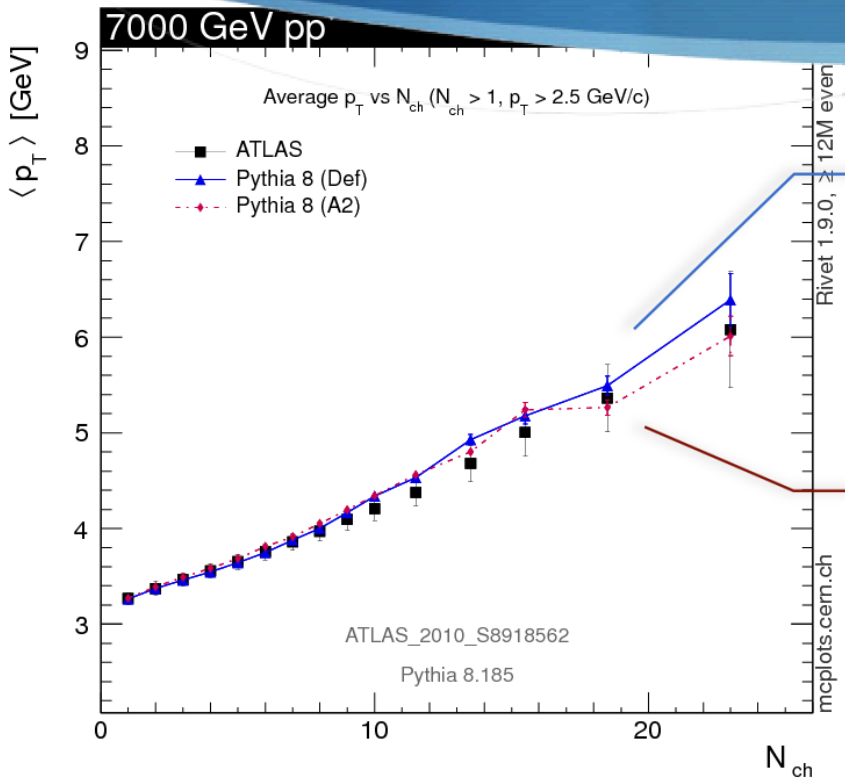
2. Theories

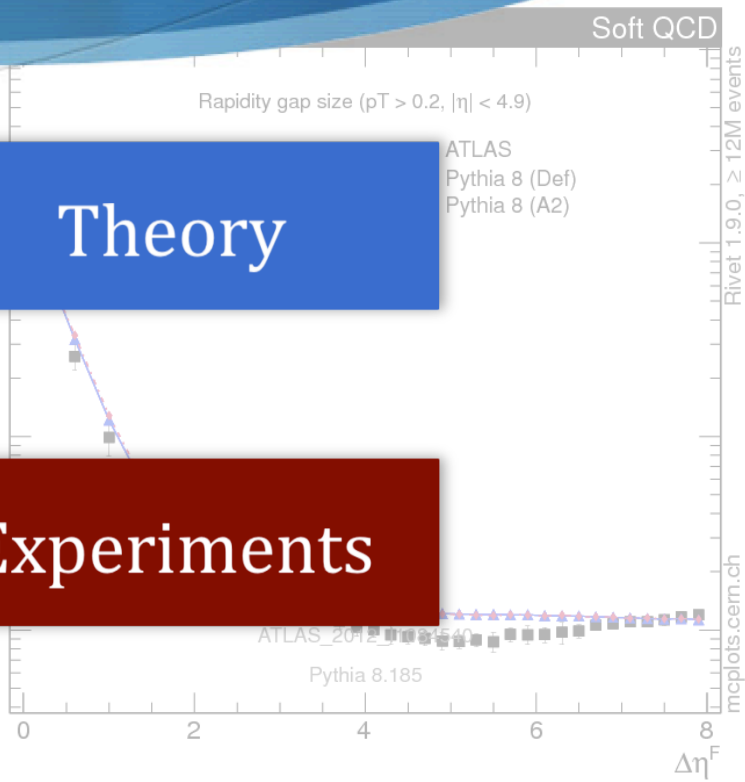
Theoretical Models = Virtual Collisions



"Theoretical Data"

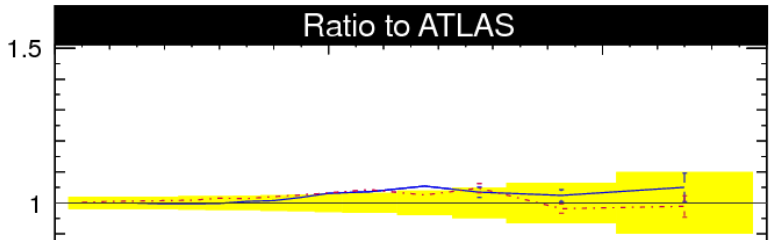
3. Fit theory to observations

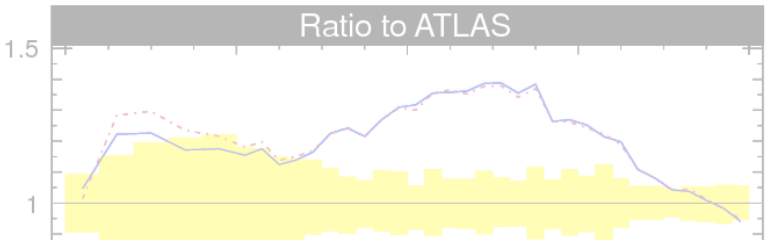




Theory

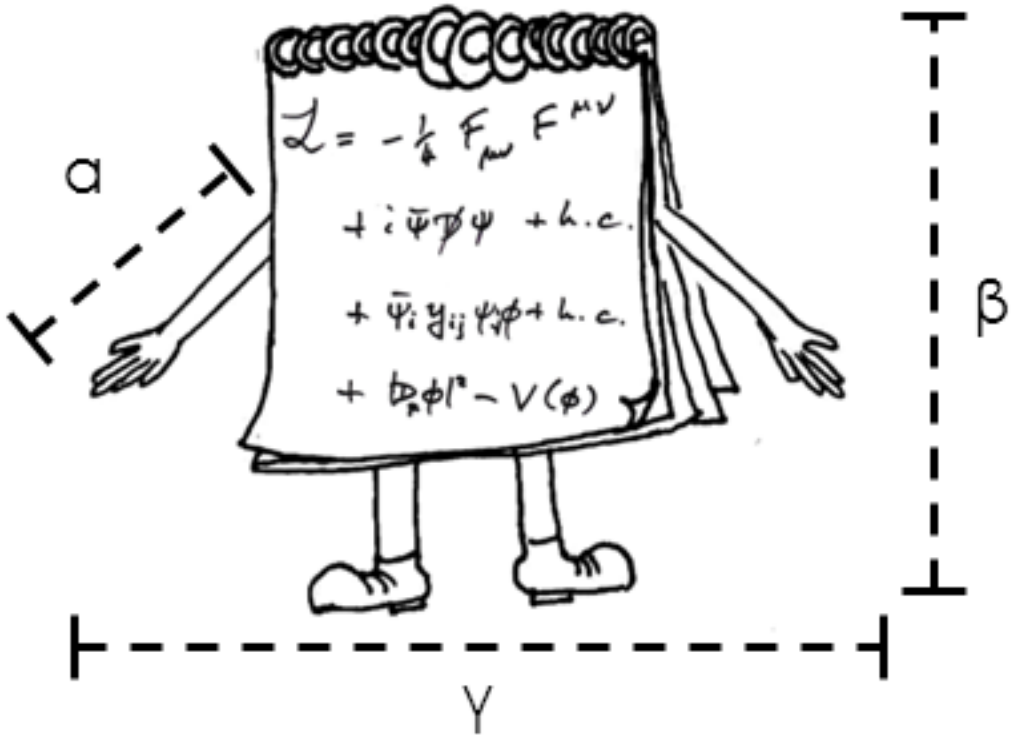
Experiments





Nope, they don’t match

Let's make them "tunable"



A 15 y/o could do it!

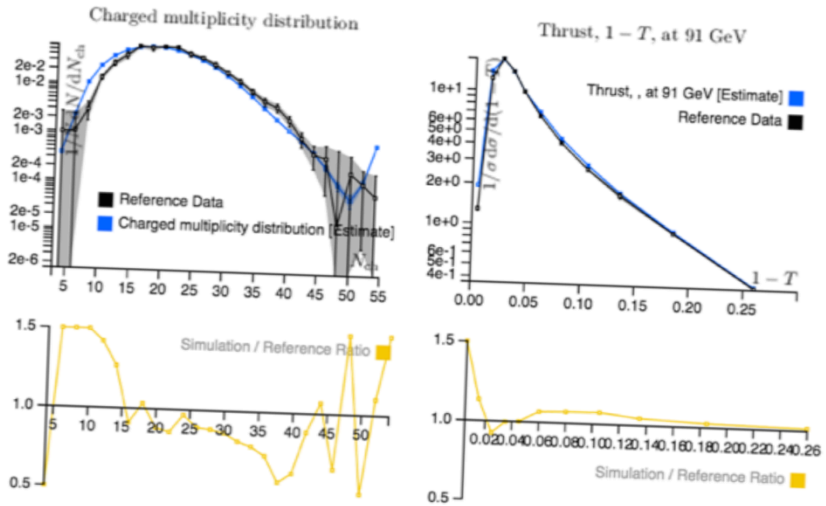
Let’s make it a game!

Tune model parameters

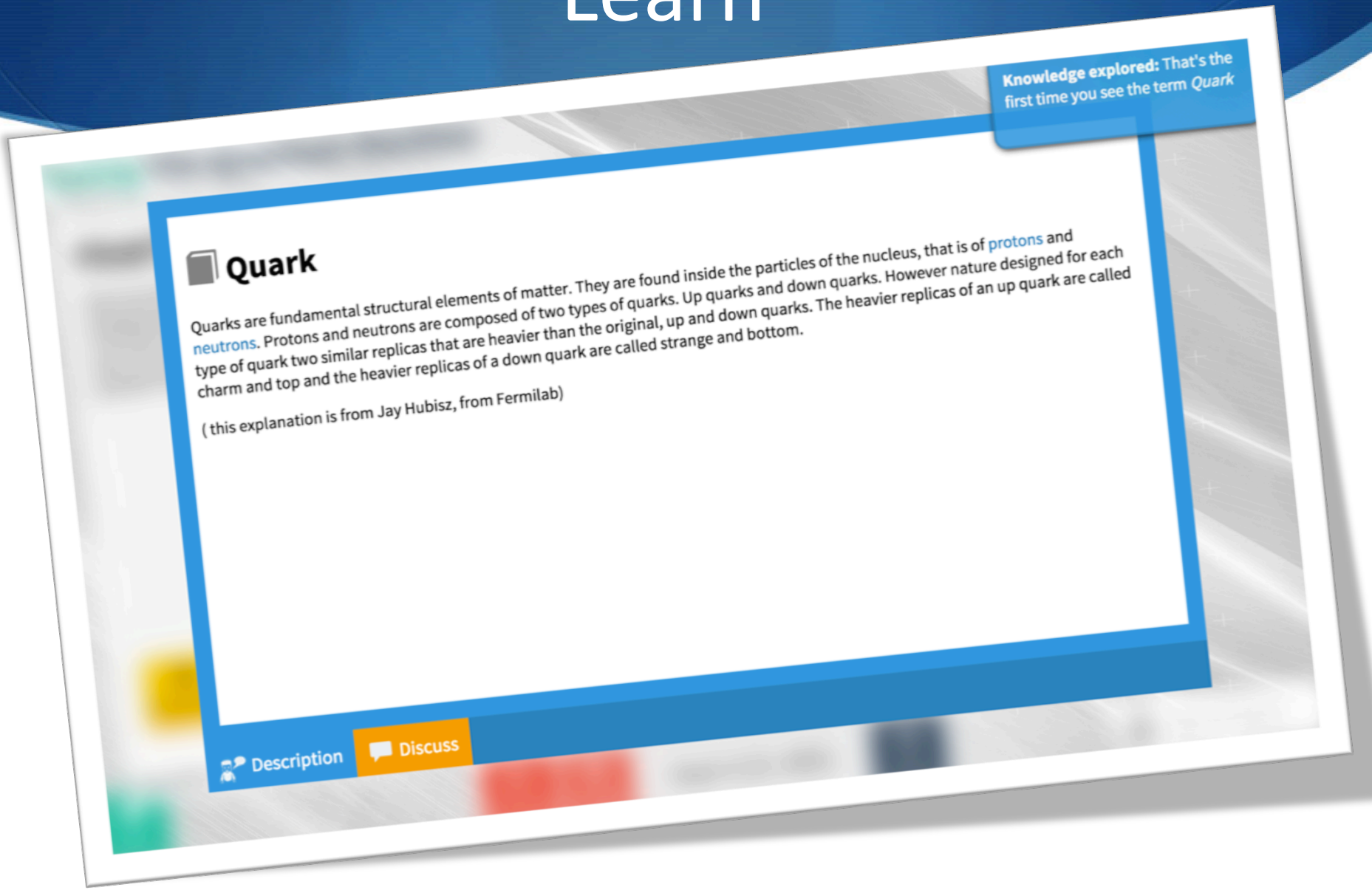
Validate your results

Fair Matches

Histograms that are fairly good, but still have some minor issues to fix (error bigger than 3 sigma).



Learn


Knowledge explored: That's the first time you see the term Quark
Quark
Quarks are fundamental structural elements of matter. They are found inside the particles of the nucleus, that is of protons and neutrons. Protons and neutrons are composed of two types of quarks. Up quarks and down quarks. However nature designed for each type of quark two similar replicas that are heavier than the original, up and down quarks. The heavier replicas of an up quark are called charm and top and the heavier replicas of a down quark are called strange and bottom.
(this explanation is from Jay Hubisz, from Fermilab)
Description
Discuss

Cllaborate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Atom Smashing
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Threads: 0
Joined: Dec 2014
Reputation: 0
Warning Level: 0%
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Hello everyone! I am looking for some information about this particular parameter. Do you
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Discuss
Team
Discuss with your teammates
Public
Discuss with everyone in the forum
Scientists
Discuss with the scientists

You can get your name in a CERN publication!

http://
test4theory.cern.ch/vas