

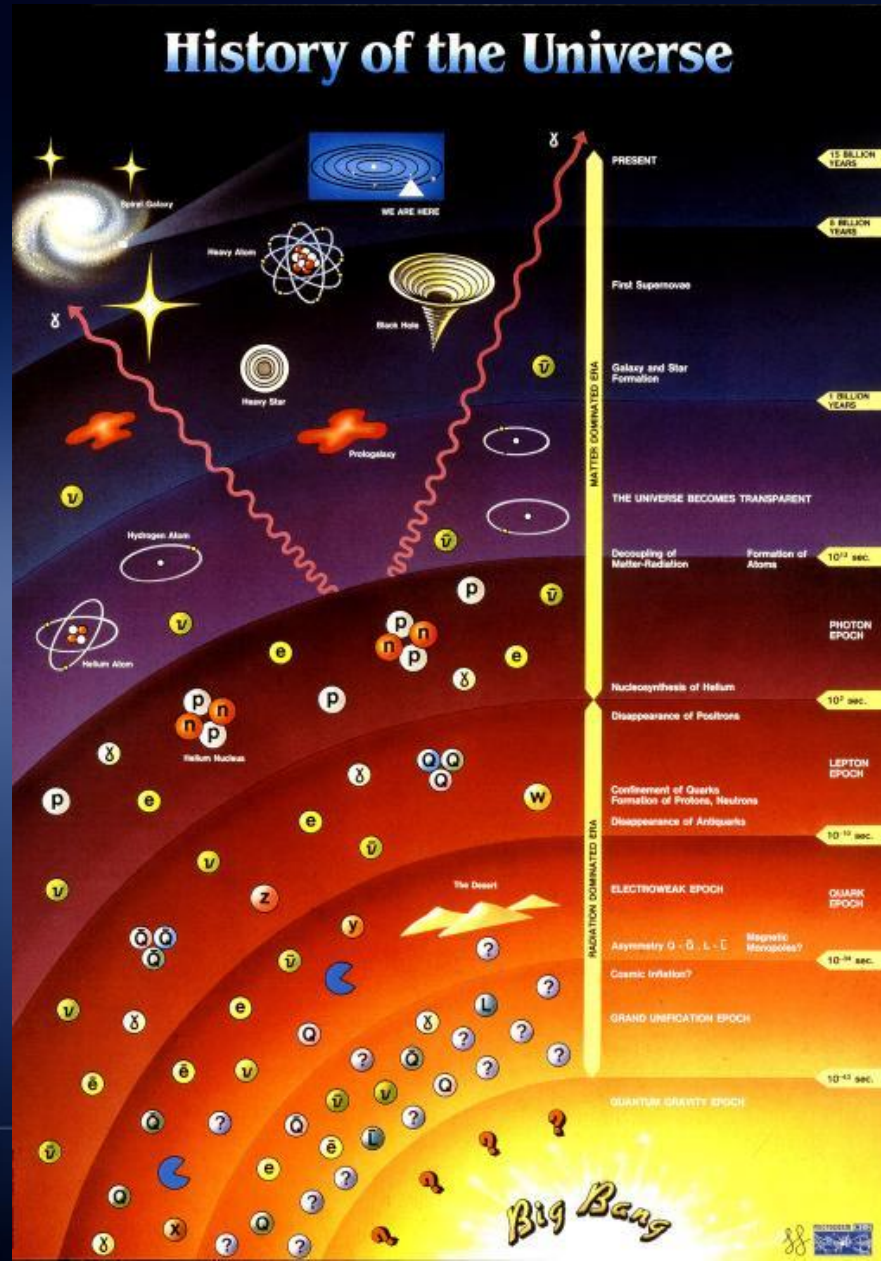
Parallel Worlds: Connecting the Micro and Macro

About CERN, Physics, and Innovation

ATTRACT Young Winning Team, September 24, 2018

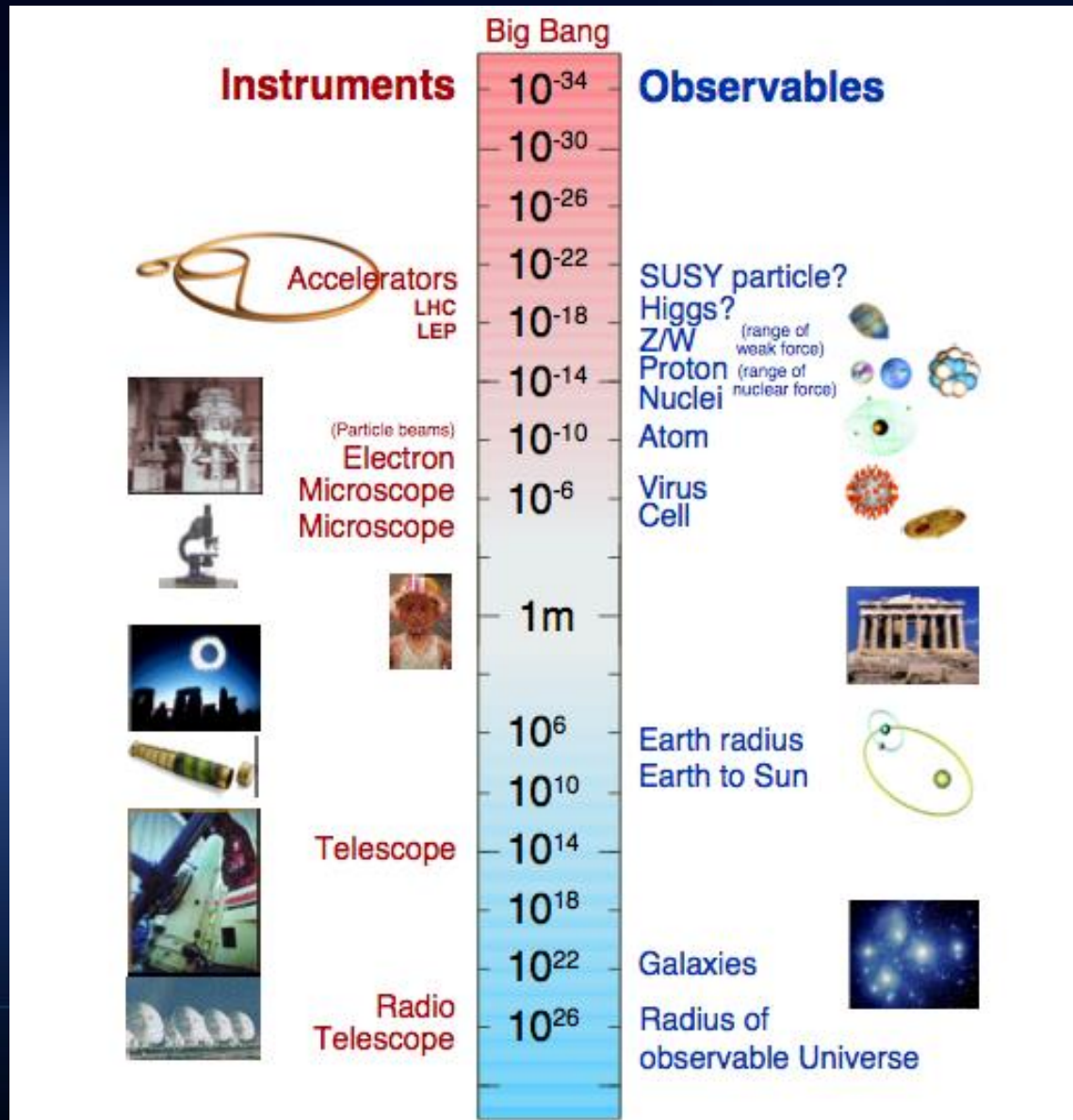
Markus Nordberg (CERN)

How does CERN Connect?

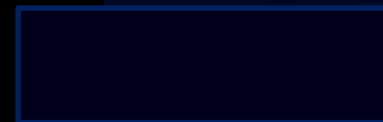
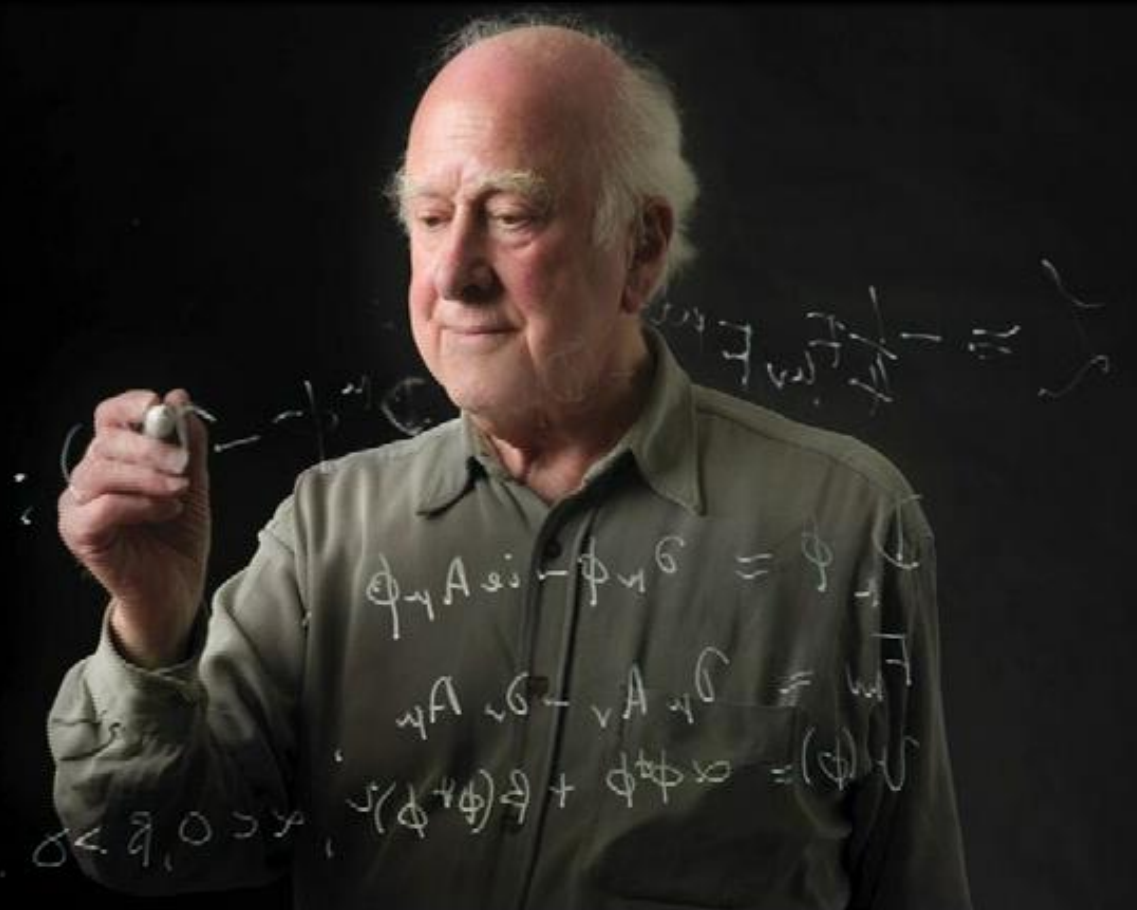


Size of things

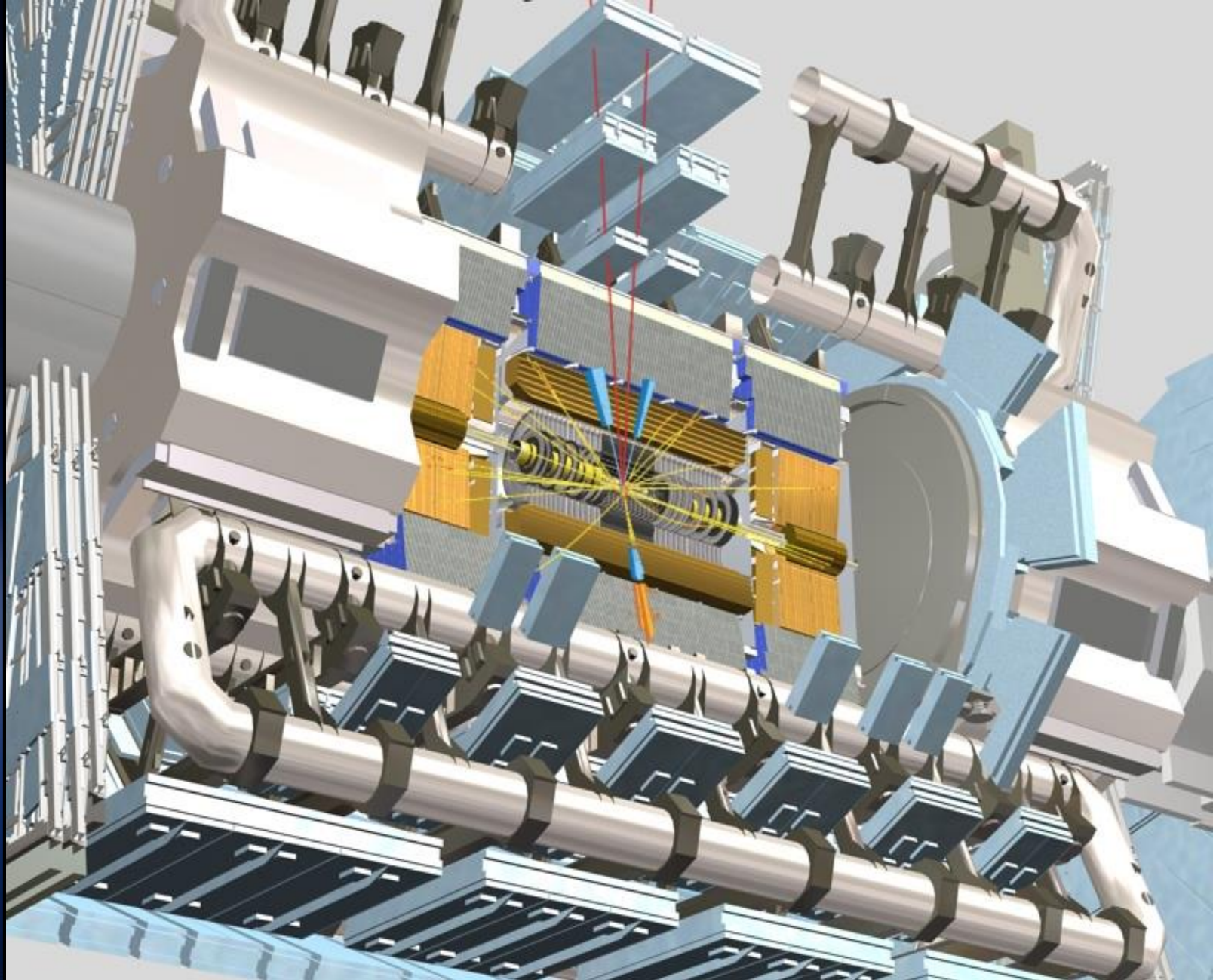
How does CERN Measure?

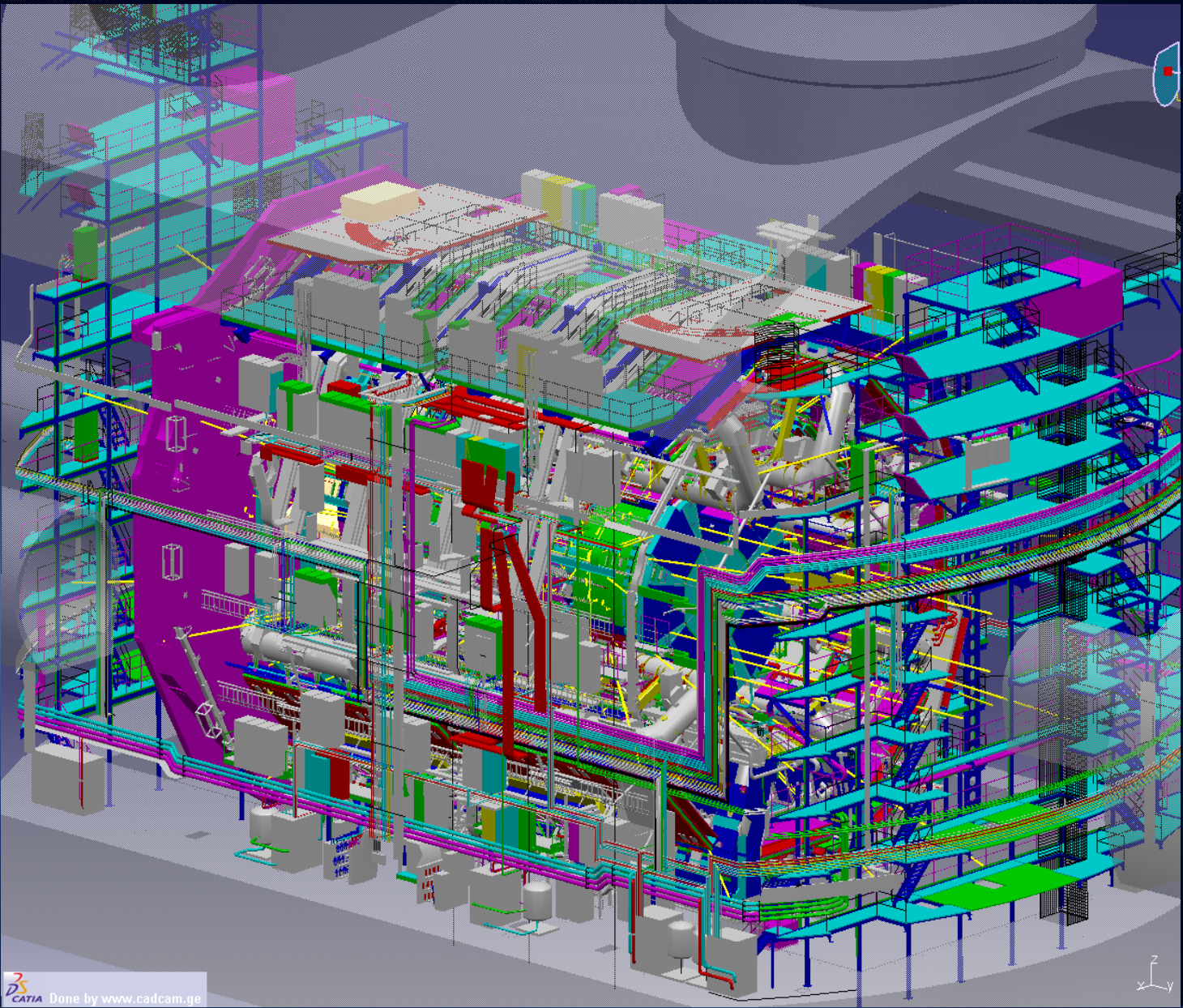


Where do we start?

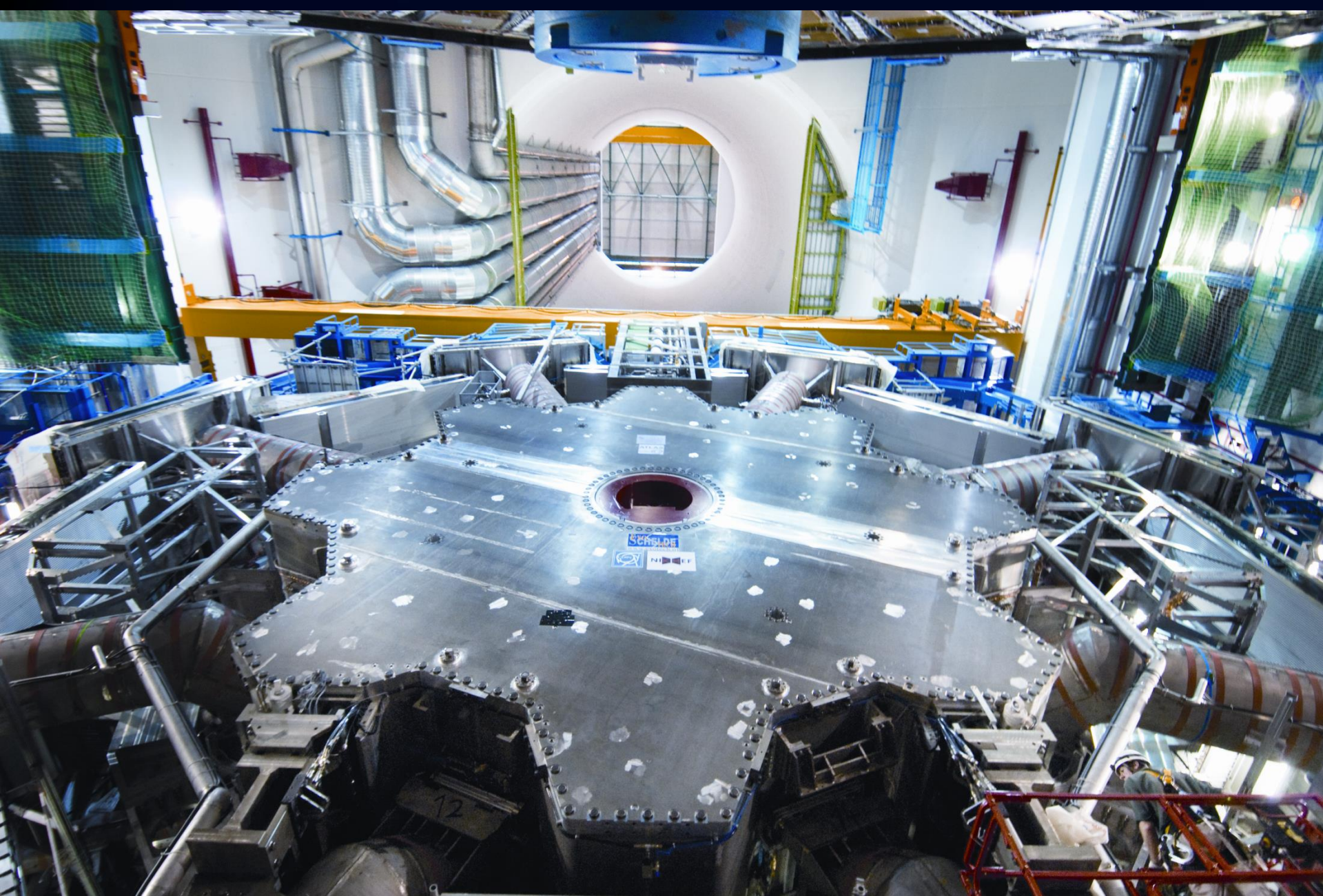








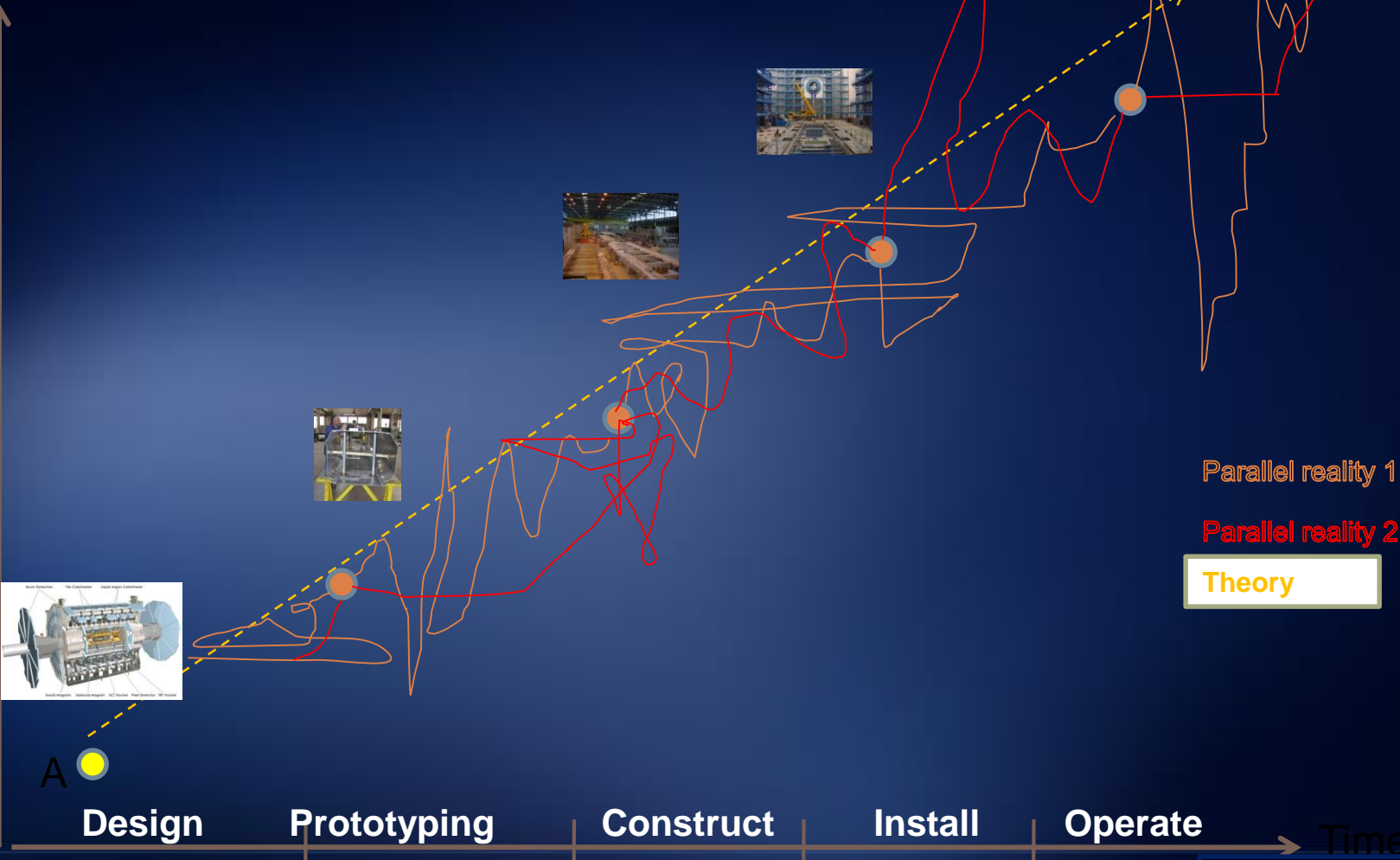
DS
CATIA Done by www.cadcam.ge



Implementing Strategy is Not Linear



Progress



Parallel reality 1

Parallel reality 2

Theory

Design

Prototyping

Construct

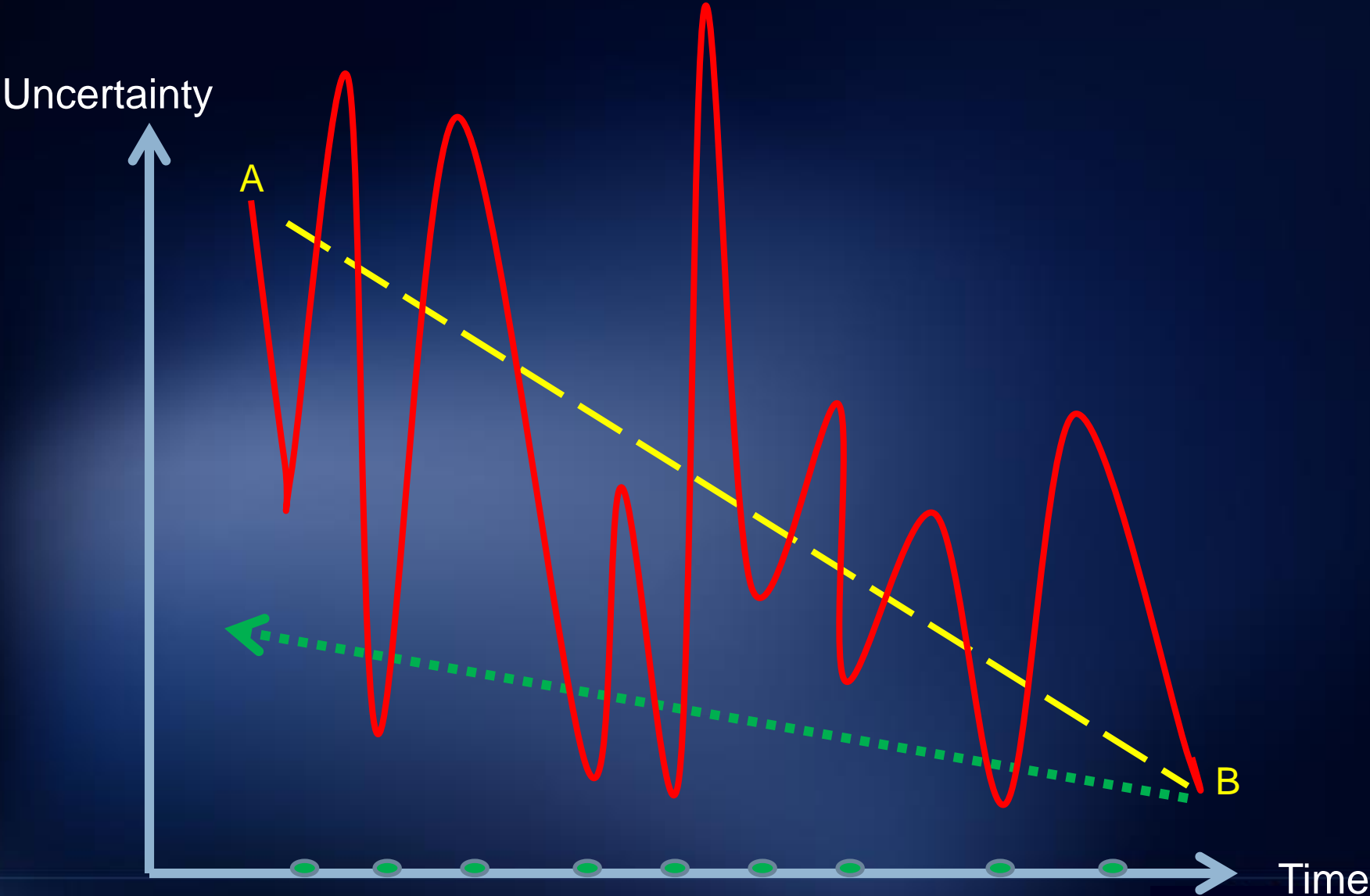
Install

Operate

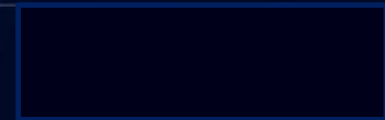
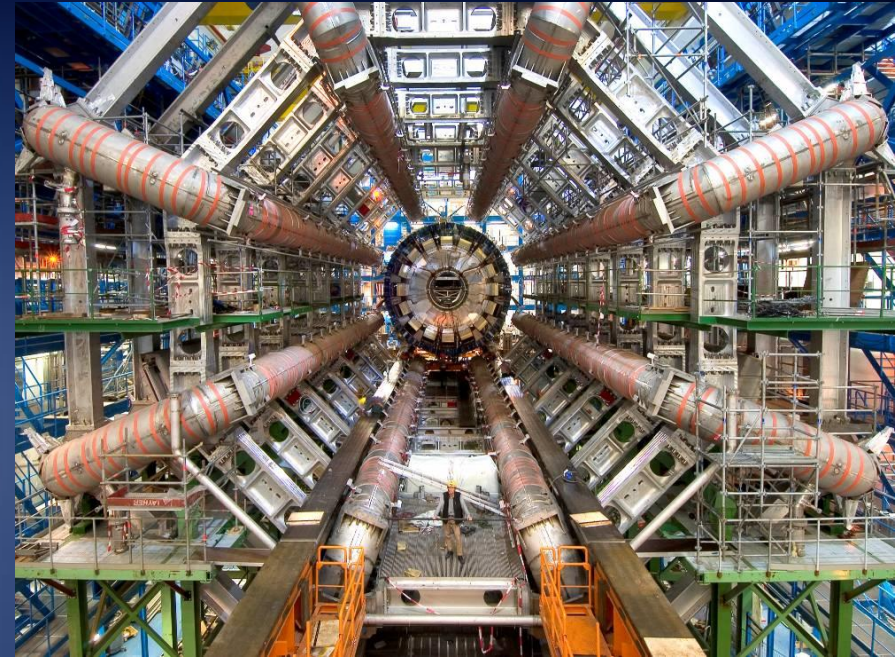
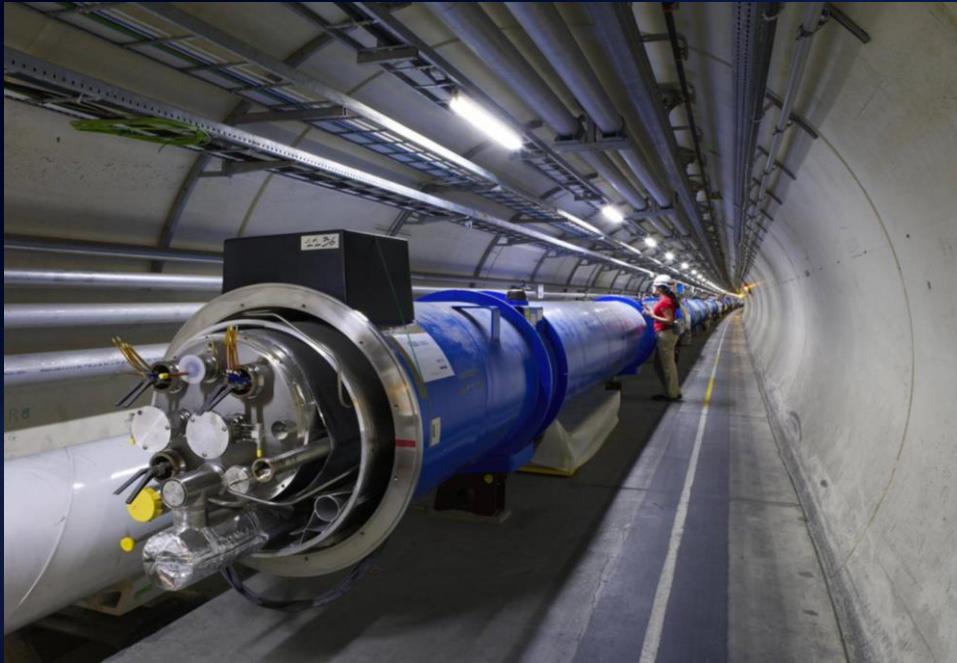
Time



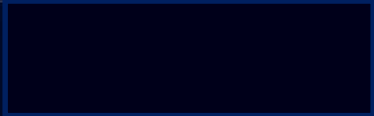
Absorbing vs. Reducing Uncertainty



Seeing the Micro needs the Macro (scopes)







CERN was founded 1954: 12 European States Today: 22 Member States

- ~ 2300 staff
- ~ 730 other paid personnel
- ~ 12 000 users
- Budget (2017) ~1000 MCHF

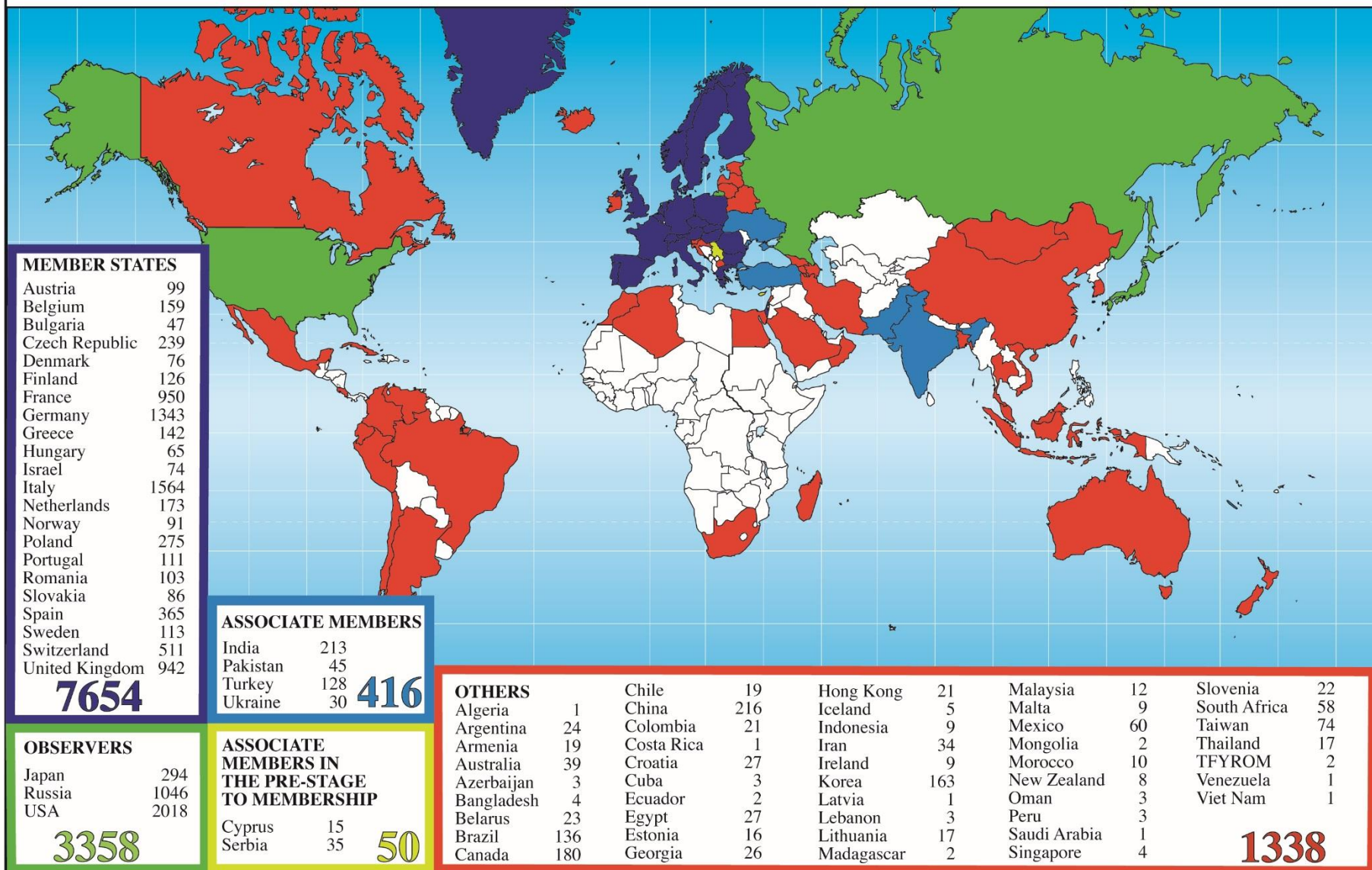
- **22 Member States:** Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Israel, Italy, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.
- **2 Candidate for Accession to Membership of CERN:** Cyprus, Serbia
- **8 Observers to Council:** India, Japan, the Russian Federation, the United States of America, Turkey, the European Commission and Unesco





A Global Reach

Distribution of All CERN Users by Location of Institute on 12 January 2017

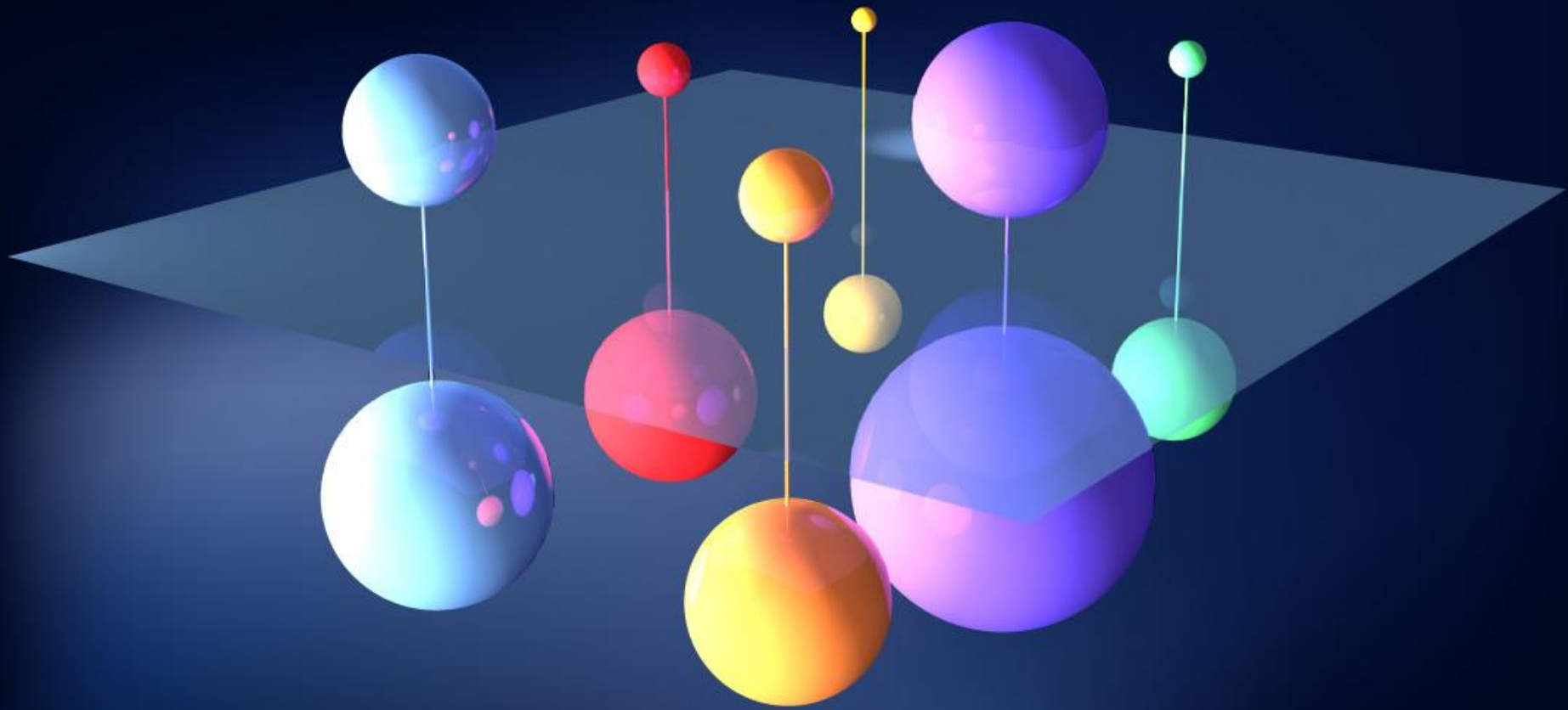


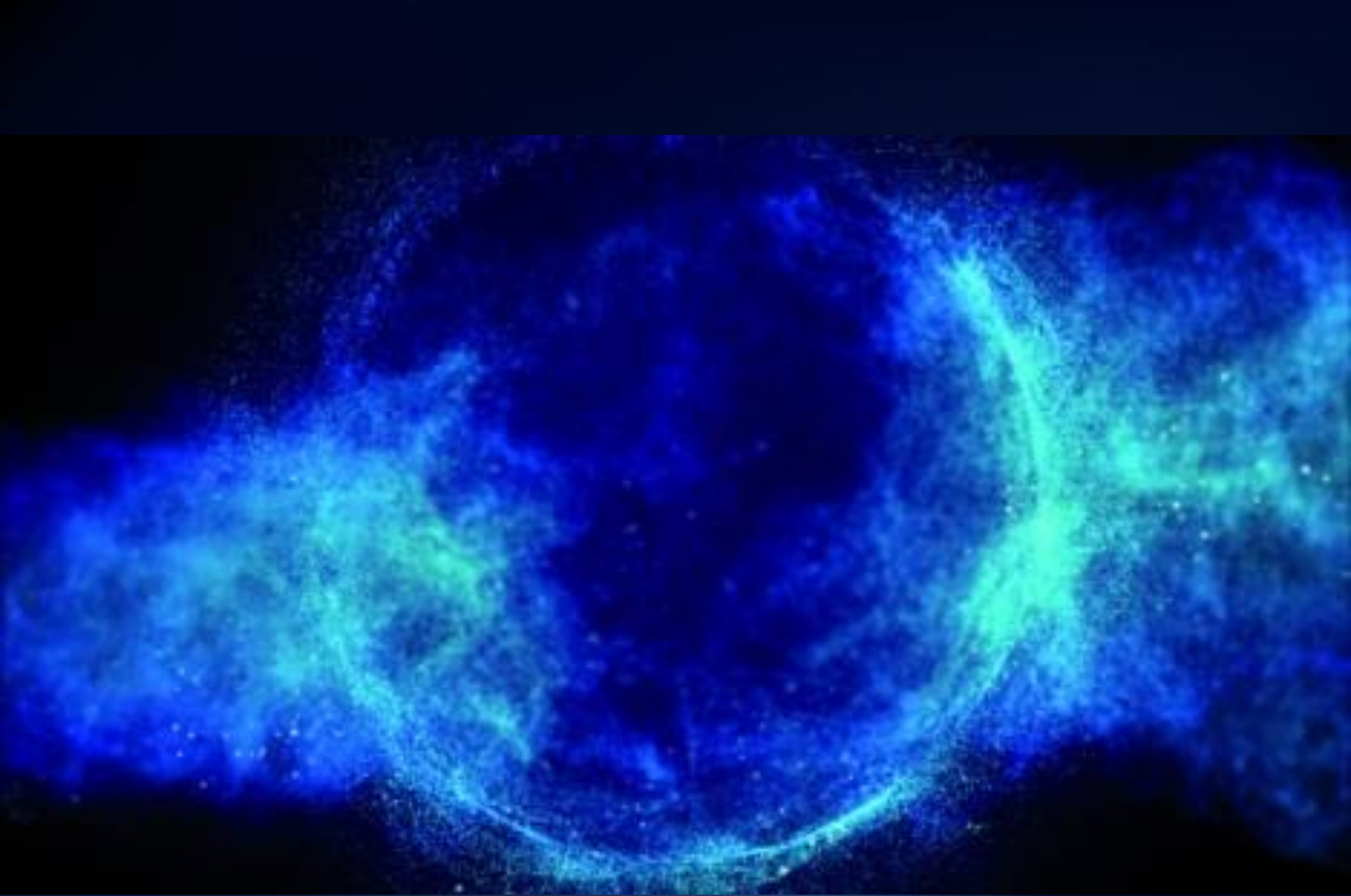
(How) Do We Manage This?

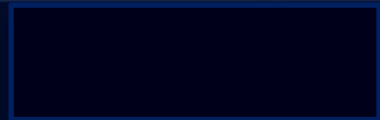
1. Vision
2. Commitment
3. Tolerance

What is Wrong with this Picture?

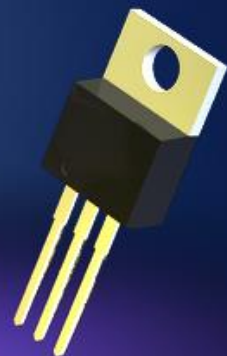














What do you see differently?