

Welcome - Welkom

Mr Michiel Sweers

Deputy Director-General of Enterprise and Innovation
Ministry of Economic Affairs and Climate Policy

Kingdom of the Netherlands

on the occasion of the Industrial Exhibition
“Holland @ CERN”

to  Accelerating Science and Innovation



CERN: founded in 1954 by 12 European States

“Science for Peace”

Today: 23 Member States

~ 2600 staff

~ 1800 other paid personnel

~ 14000 scientific users

Budget (2019) ~ 1200 MCHF

Member States: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Israel, Italy, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Spain, Sweden, Switzerland and United Kingdom

Associate Members in the Pre-Stage to Membership: Cyprus, Slovenia

Associate Member States: India, Lithuania, Pakistan, Turkey, Ukraine

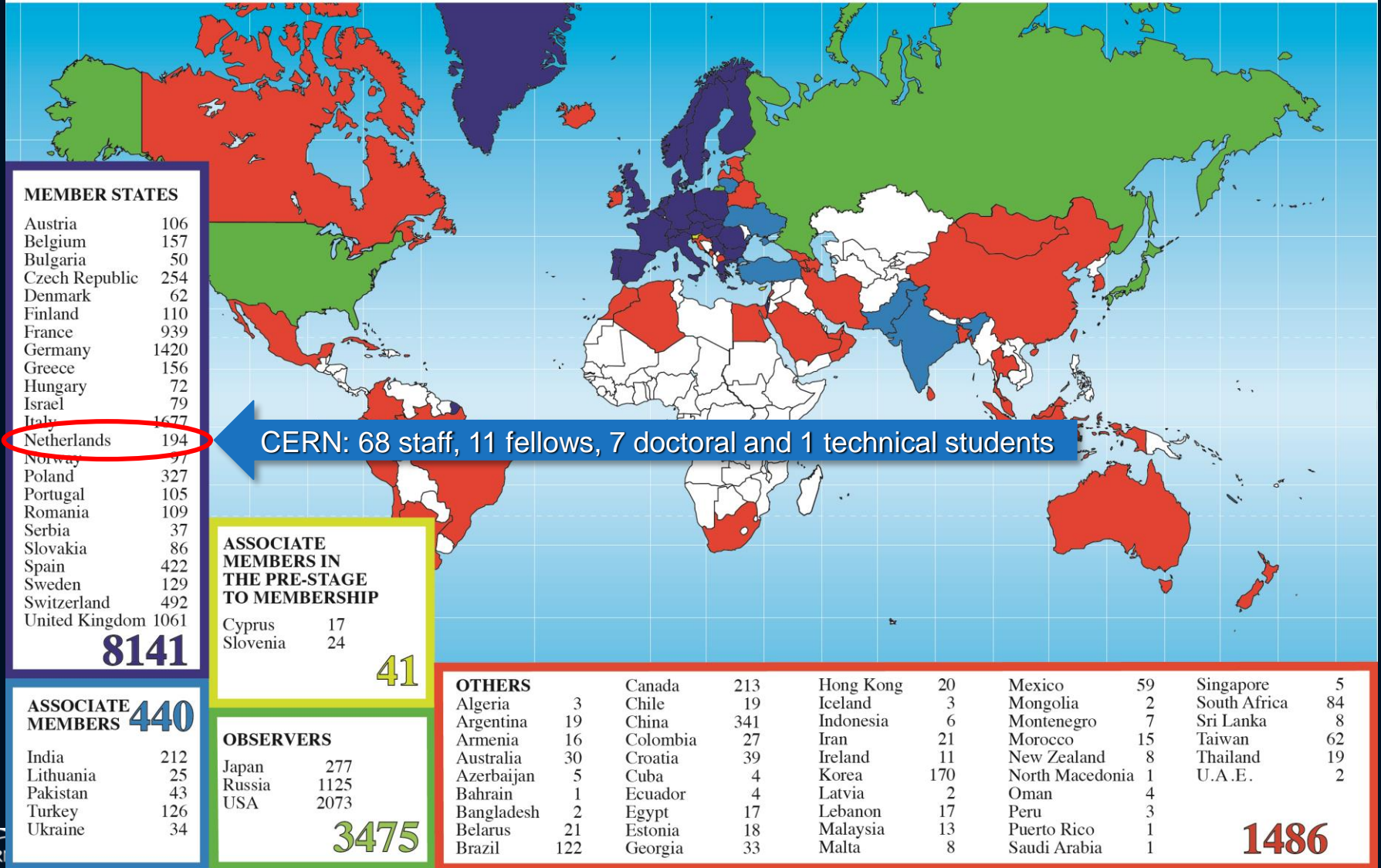
Applications for Membership or Associate Membership:

Brazil, Croatia, Estonia

Observers to Council: Japan, Russia, United States of America;
European Union, JINR and UNESCO

Science is getting more and more global

Distribution of All CERN Users by Location of Institute on 9 April 2019

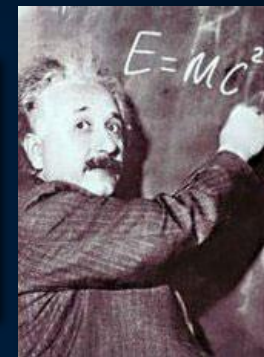
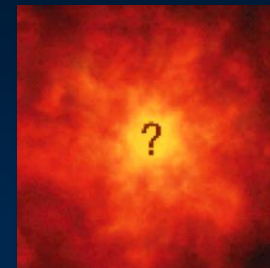




The Mission of CERN

❑ Push back the frontiers of knowledge

E.g. the secrets of the Big Bang ...what was the matter like within the first moments of the Universe's existence?

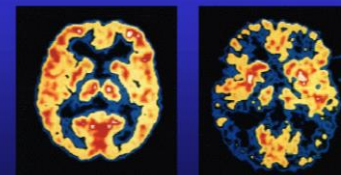


❑ Develop new technologies for accelerators and detectors

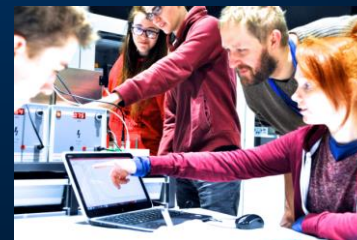
Information technology - the Web and the GRID
Medicine - diagnosis and therapy



Brain Metabolism in Alzheimer's Disease: PET Scan



❑ Train scientists and engineers of tomorrow

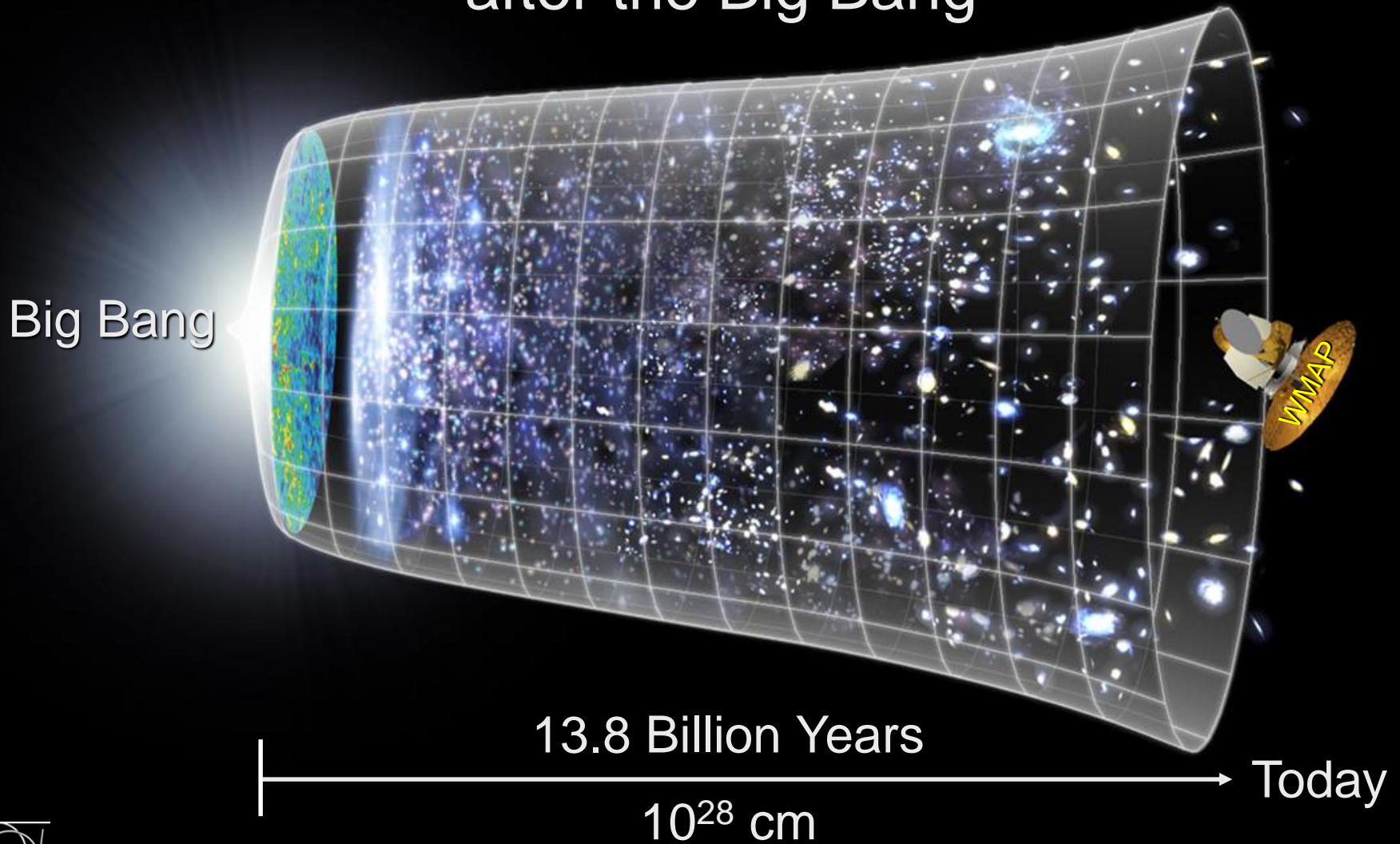


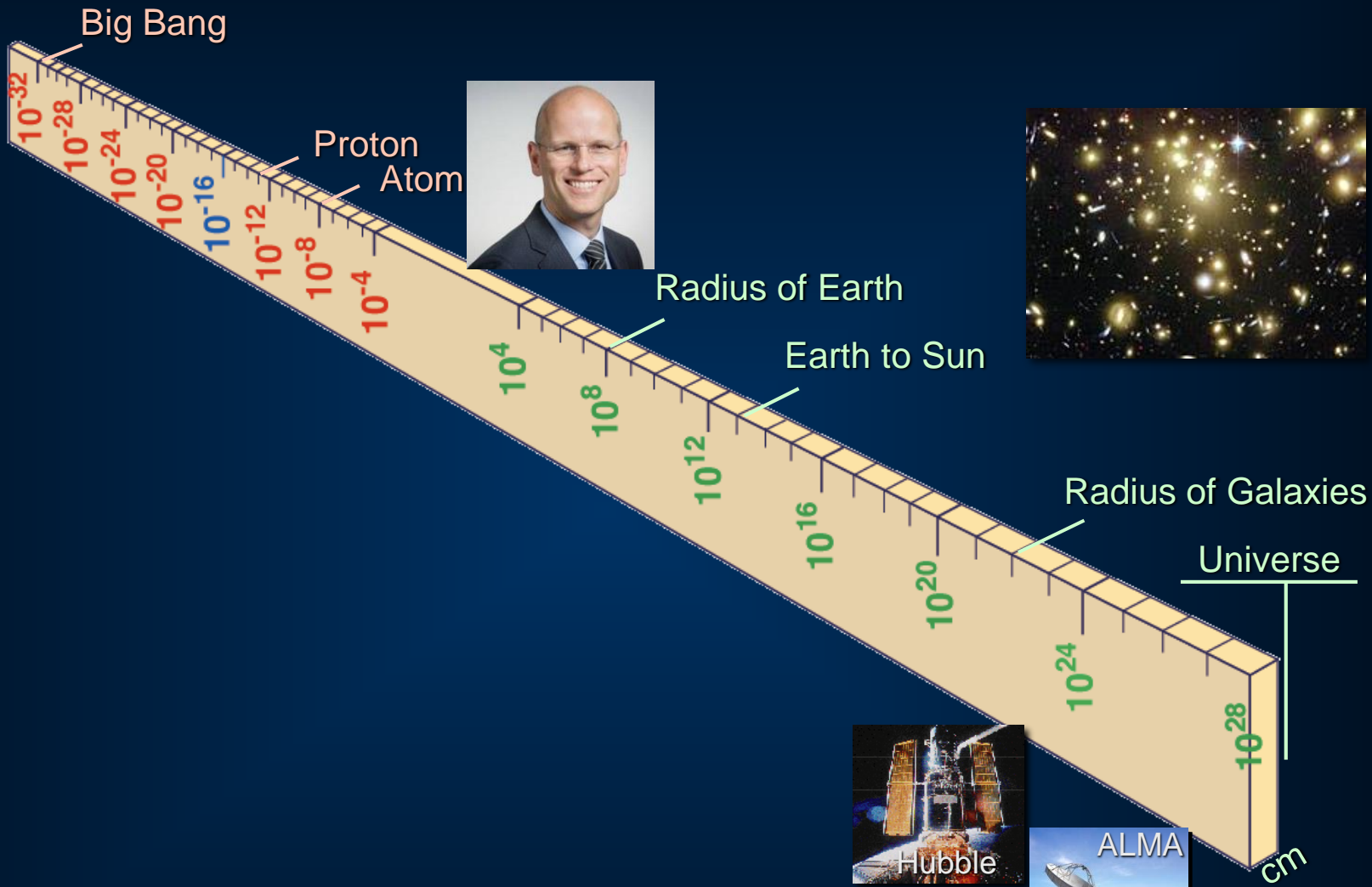
❑ Unite people from different countries and cultures



Scientific Challenge:

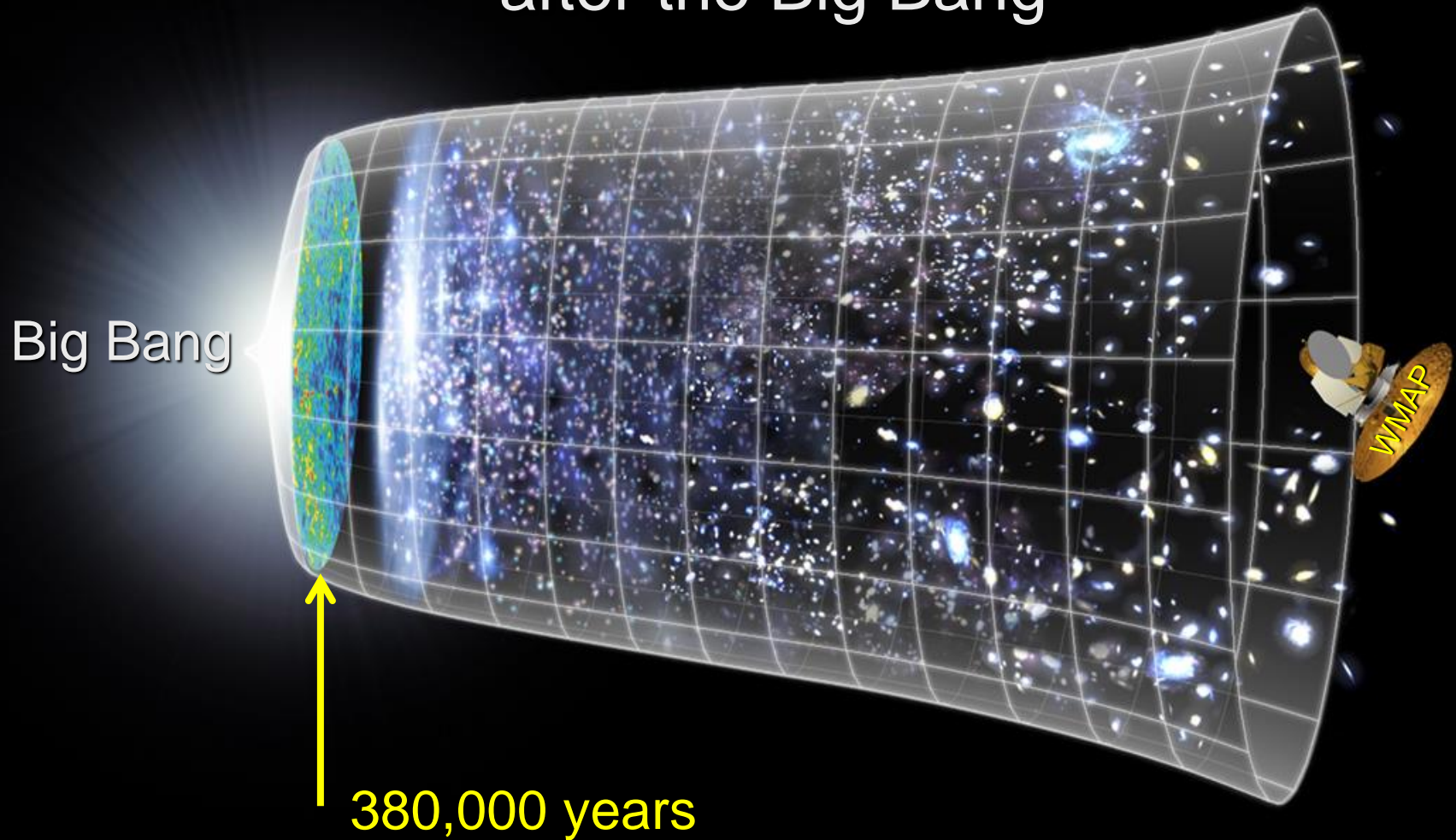
understand the very first moments of our Universe
after the Big Bang

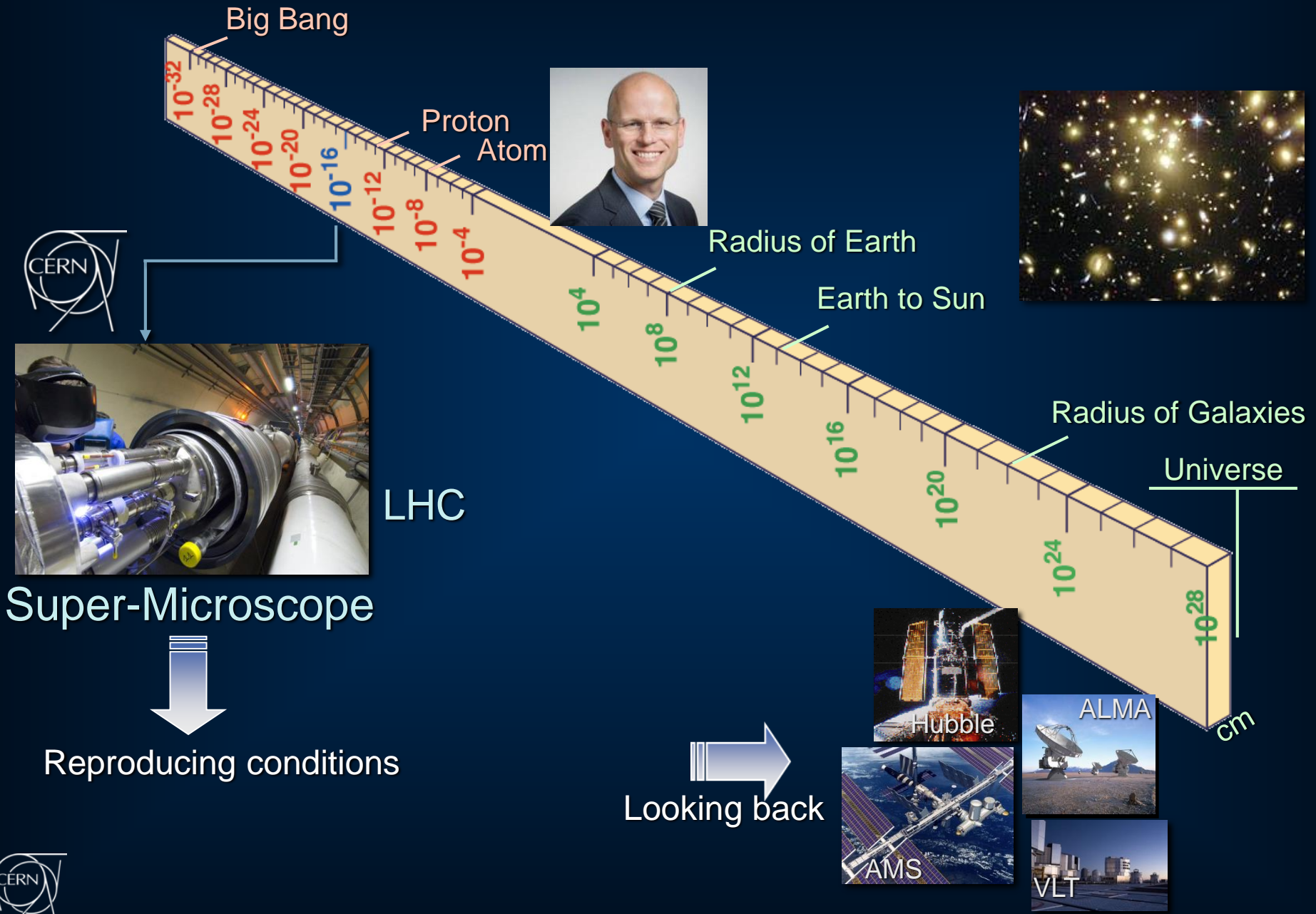




Scientific Challenge:

understand the very first moments of our Universe
after the Big Bang





LHC: A New Era in Fundamental Science



Discovery 2012, Nobel Prize in Physics 2013



The Nobel Prize in Physics 2013 was awarded jointly to François Englert and Peter W. Higgs *"for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which recently was confirmed through the discovery of the predicted fundamental particle, by the ATLAS and CMS experiments at CERN's Large Hadron Collider"*.



The Netherlands and CERN



The Netherlands is a **founding member** of CERN

Cornelis Jan Bakker: 2nd Director General of CERN (1955-1960)

Dutch scientists have made very important contributions to the advance of Particle Physics in general and have maintained a strong involvement in CERN

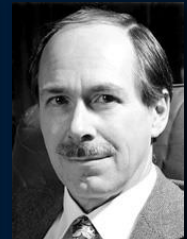
Nobel Prizes in Physics:

related to advance of Particle Physics:

1913: **H. Kamerlingh Onnes**: Superconductivity

1984: **S. van der Meer**: Accelerator physics (at CERN)

1999: **M. Veltman and G. 't Hooft**: theory of electroweak interactions



2007: CERN Visit by **Dr Ronald Plasterk** (Minister for Education, Culture and Science) with Peter Jenni and Jos Engelen



2014: CERN Visit by **Mr Sander Dekker** (State Secretary for Education, Culture and Science)



2018: CERN Visit by **Mr Marcelis Boereboom** (Director-General for Higher Education, Vocational Education, Science and Emancipation, Ministry of Education Culture and Science)





The Netherlands and CERN



Strong involvement in the LHC experimental programme ATLAS, LHCb and ALICE

Particle physics in the Netherlands is coordinated by **Nikhef**, a collaboration between NWO-I and 6 universities



ATLAS End Cap Toroid

Vacuum vessels and coils for the end cap toroids were manufactured in the Netherlands.



University of Twente contributes at CERN to Superconducting Magnet Technology.

GRID computing: Amsterdam as centre-of-excellence.

Dutch industry has played an important role.





Thank You!
Hartelijk Dank!

SUISSE
FRANCE

LHCb

ATLAS

CERN Meyrin

CERN Prévessin

SPS 7 km

CMS

ALICE

LHC 27 km



Accelerating Science and Innovation