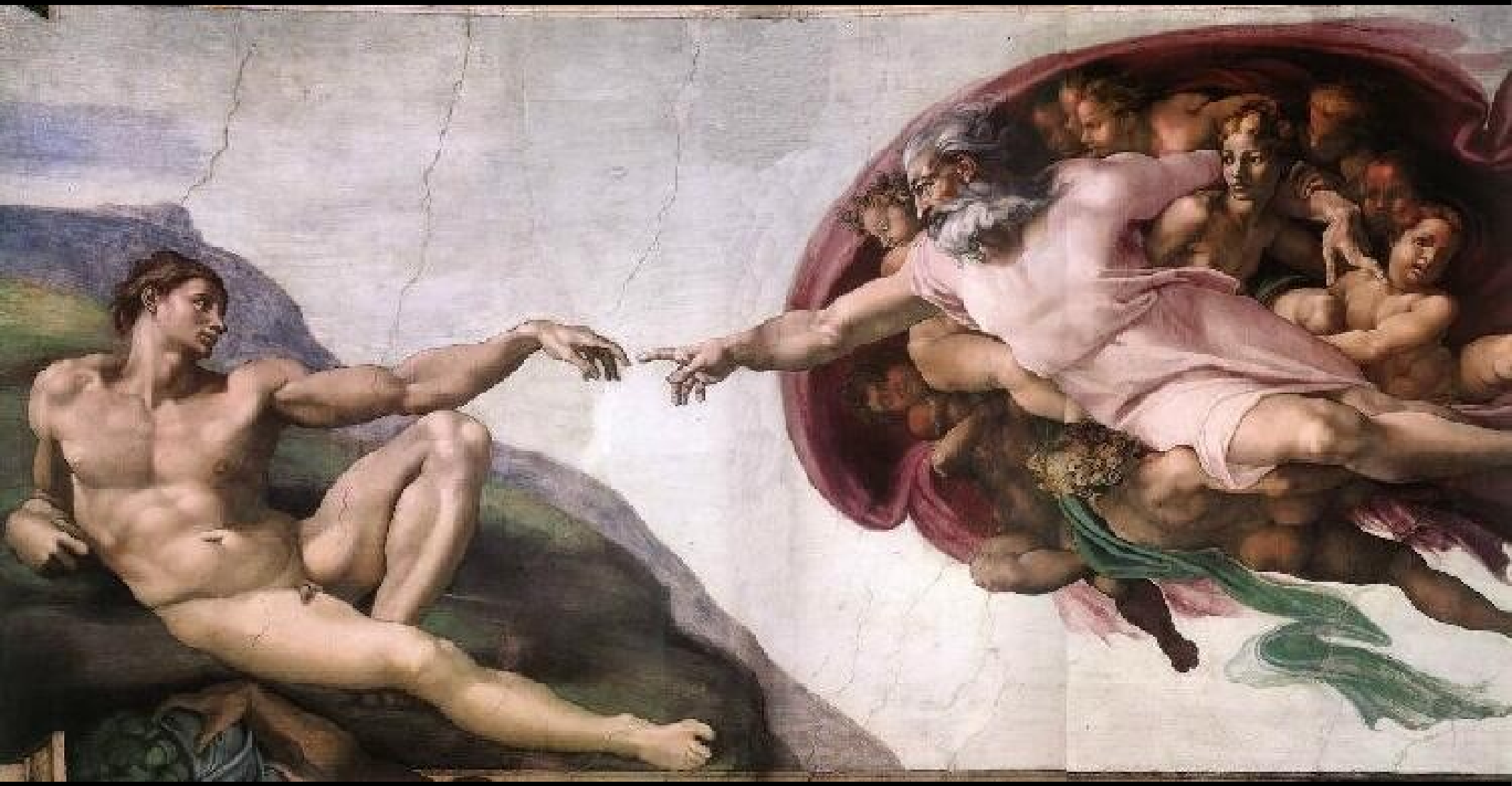
Physics & Faith

Faith & Physics



Evangelical Lutheran Church of Geneva

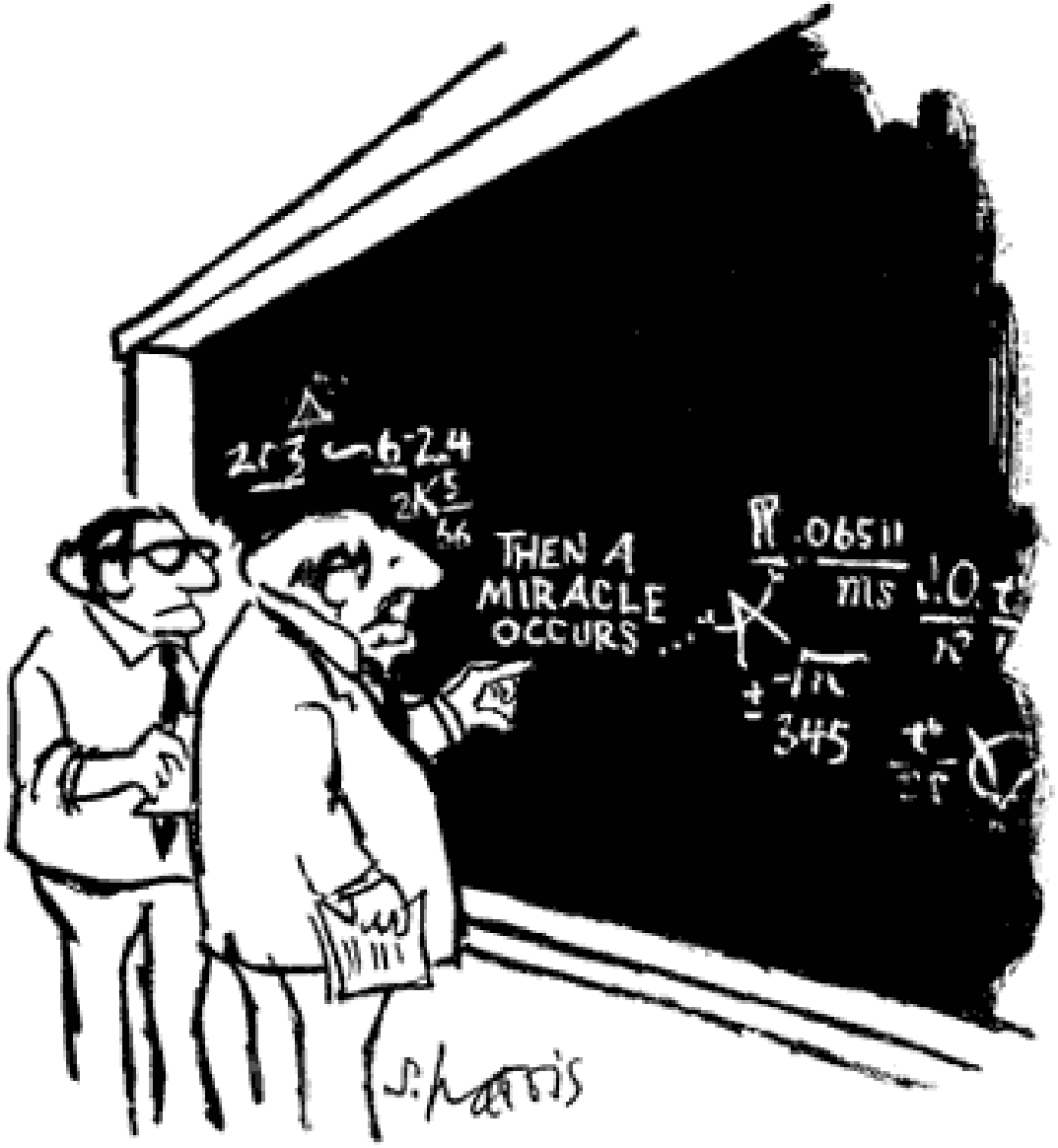
2009-05-31

Physics is not about finding 'truths' ...

…but about discovering how nature works.

The Problem with Terminology or ...

… why some have trouble with Physics



"I think you should be more explicit here in step two."

Physicists' fundamentals:

What, When, Why, How (exactly)...

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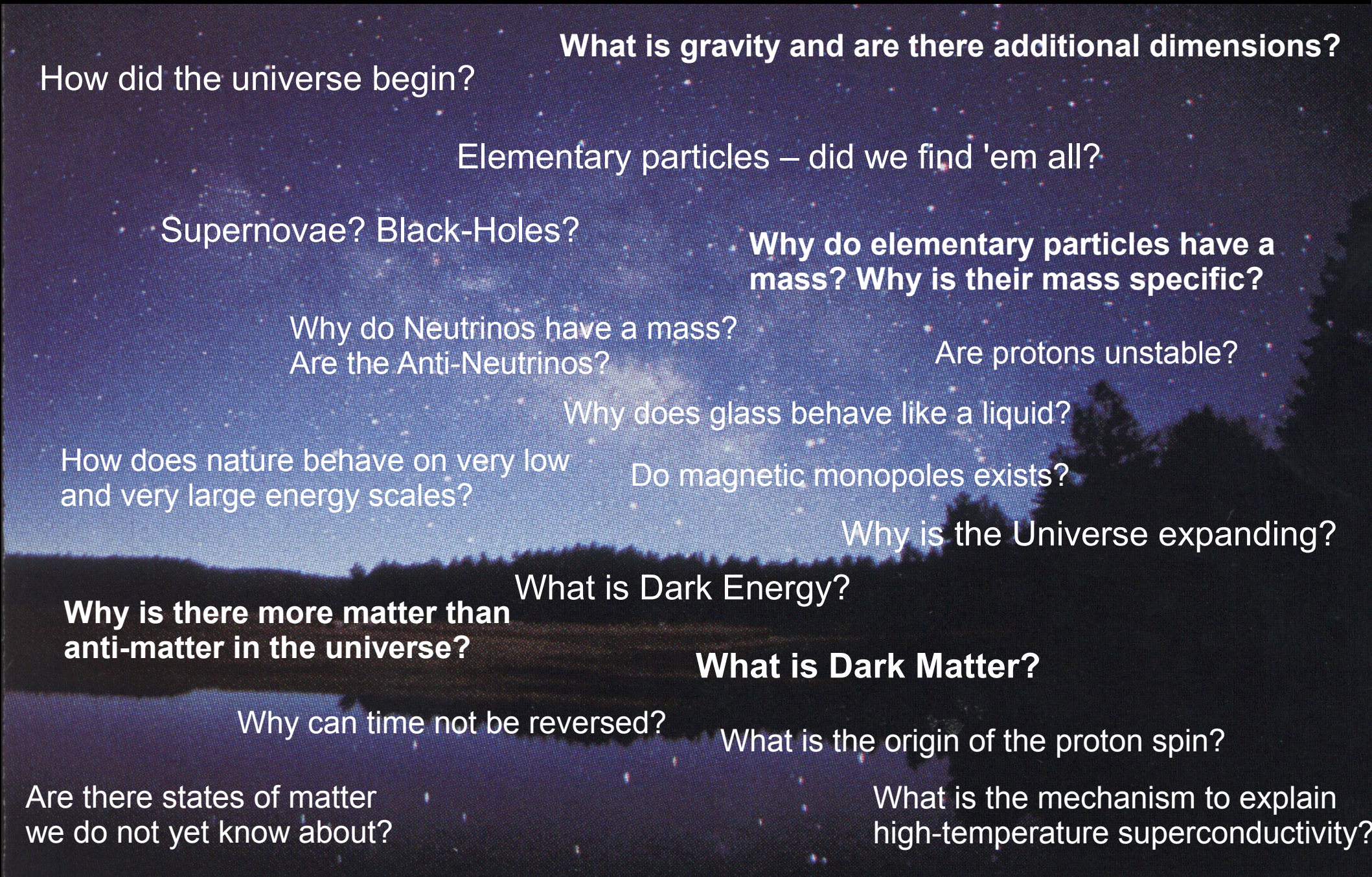
What, When, Why, How (exactly)...



Dark Matter, Age of the Universe, ...
… and why there was a “Big Bang”

Anti-Matter does exist …

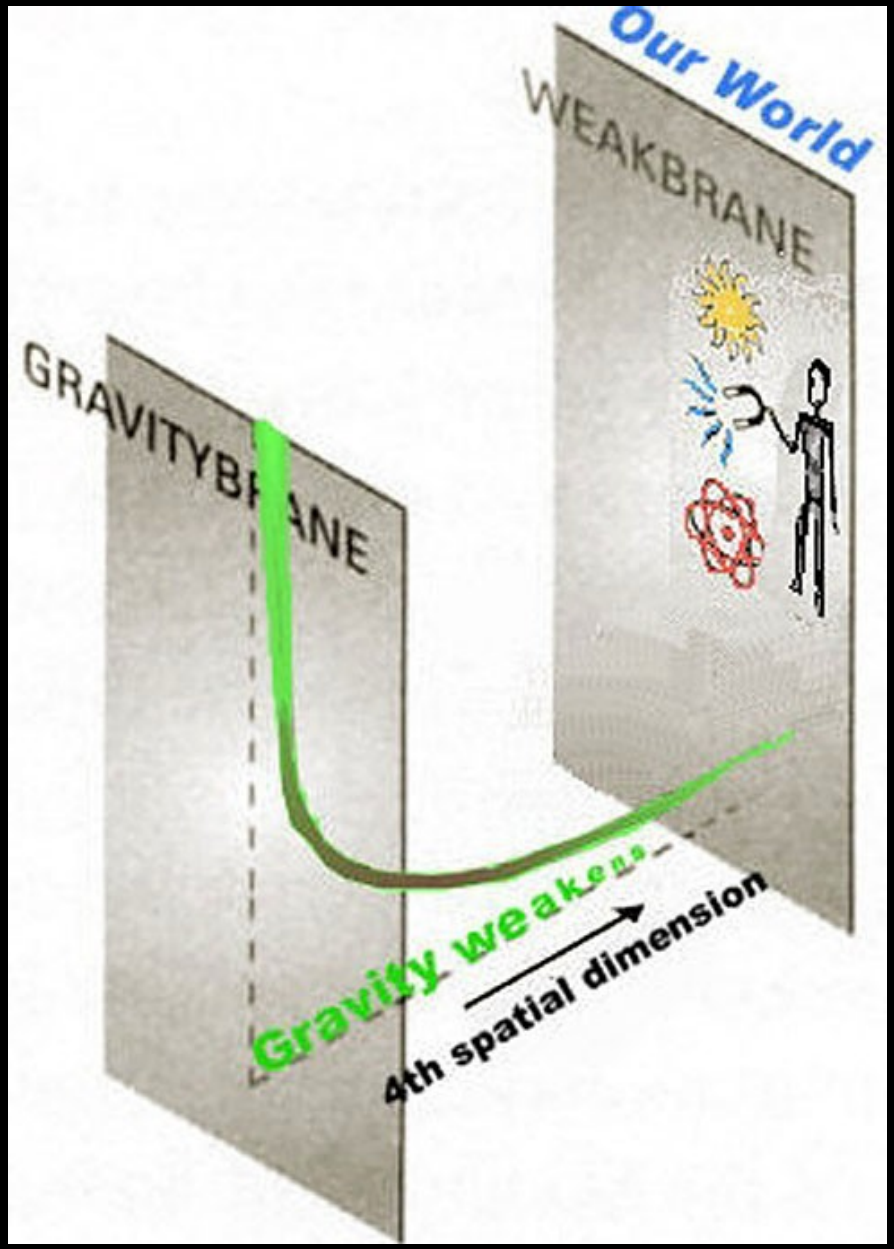
… but why is it so rare in the Universe?

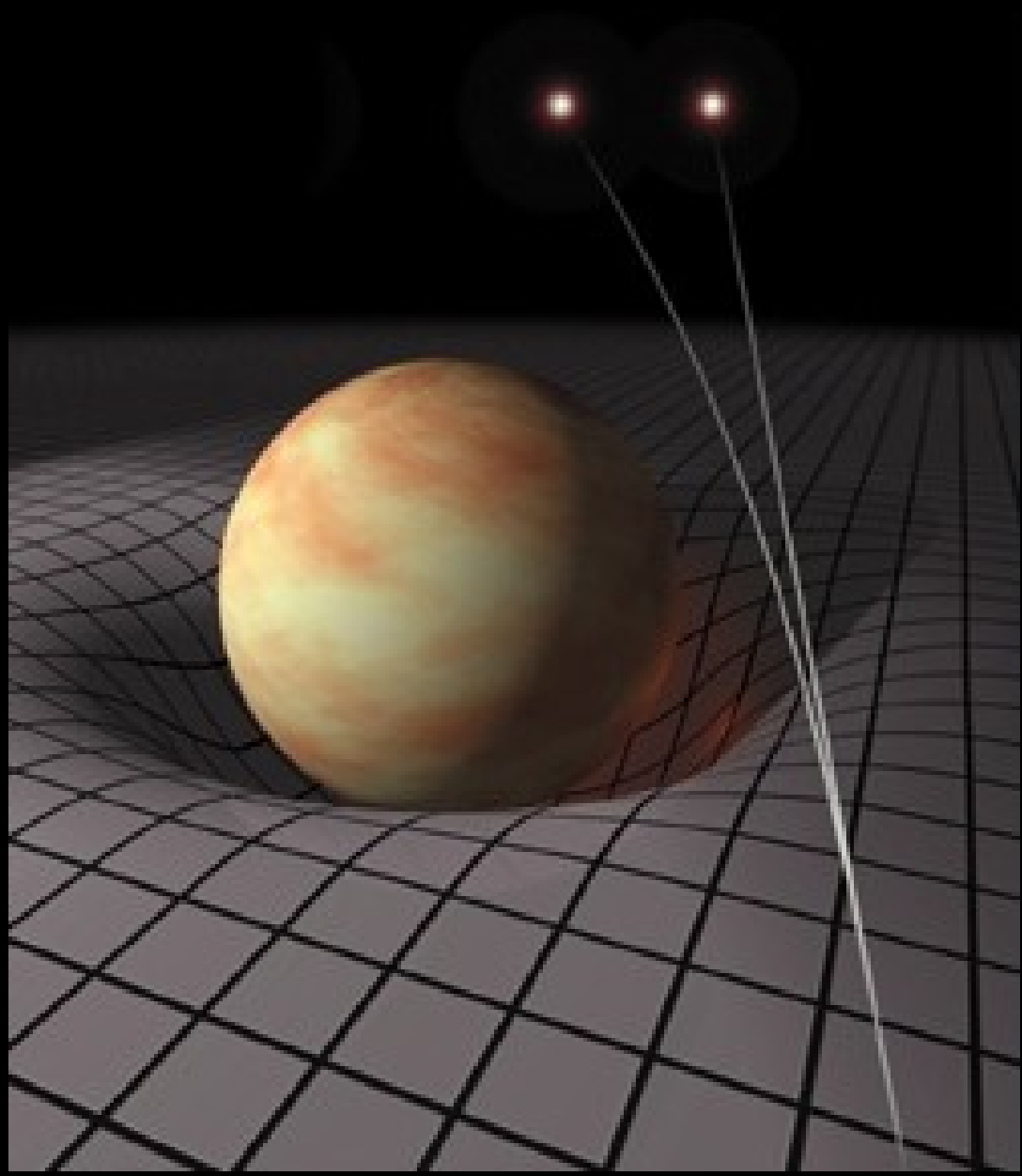
Why do elementary particles have a mass?

… what's behind the 'GOD®' particle?

Does our world have more than 3+1 dimensions?
How does gravity work? Or:

What the … are “micro-black-holes” and why we are excited about (even worse) unstable ones?

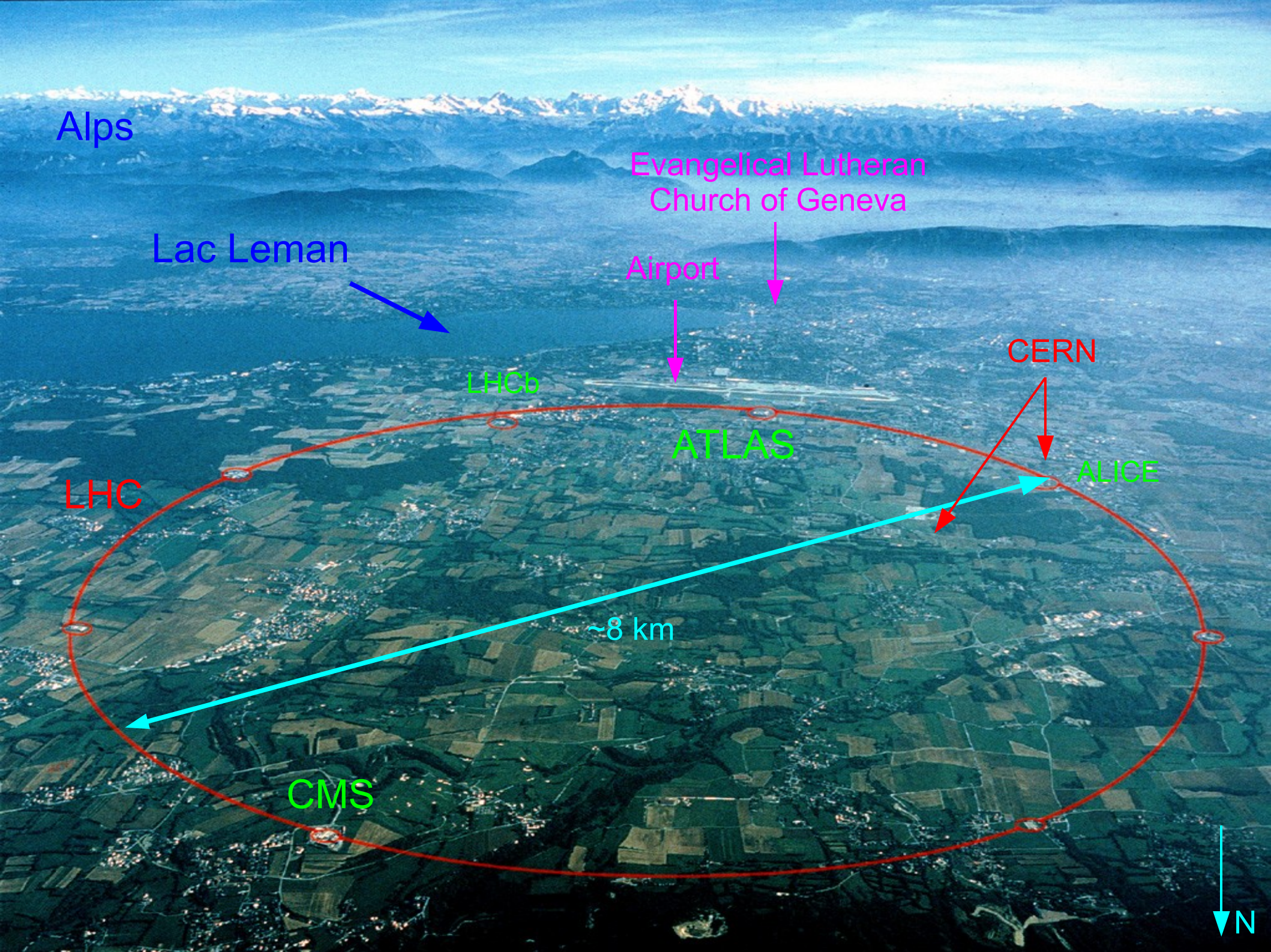




CERN - Conseil Europeén pour la Recherche Nucléaire
Today: European Organization for Nuclear Research

- 1951: CERN's mission:
  - provide resources and common infra-structure related to pure scientific and fundamental character
  - Promote peace and collaboration platform, education and sharing of scientific results among nations
- 20 member states + some observers: India, Israel, Japan, Russian Federation, USA, Turkey, European Commission and UNESCO
- One of Geneva's largest organisations:
  ~ 2500 full-time employers, > 9000 visiting scientists
- A small world of its own → extraterritorial (neither CH/FR)

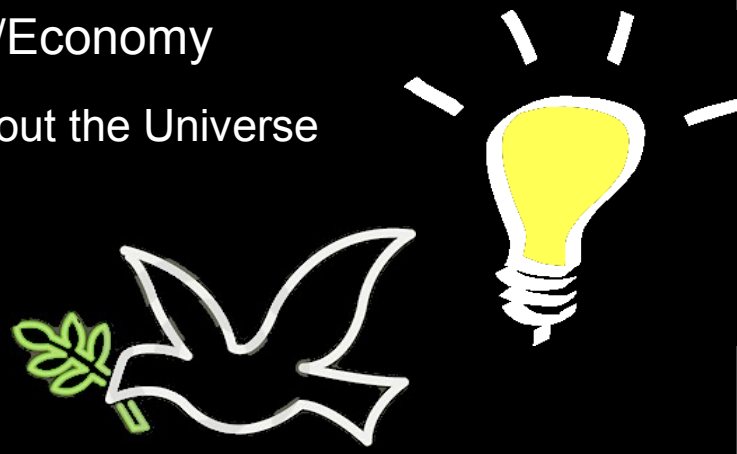
- Cradle of the World-Wide-Web: http://www.cern.ch
- GRID - One of the world's most power-full data processing networks
- World's home of High-Energy Physics, Nobel-Prize Winners and ELCG members
- More info:


Alps
Evangelical Lutheran
Church of Geneva
Lac Leman
Airport
CERN
LHCb
ATLAS
ALICE
LHC
~8 km
CMS
N

What are long-, medium- and short-term benefits?
… why we must spend money for science?

Long-Term - World is becoming a Knowledge-based Society/Economy

- Research: Seeking and finding answers to questions about the Universe
- Technology: Advancing the frontiers of technology
- Collaborating: Bringing nations together through science
- Education: Training the scientists of tomorrow



Medium-Term: Fundamental Research enables applied Science, e.g.

- Quantum-Mechanics → Semi-Conductor → Transistors → Computer
- General Theory of Relativity (Einstein) → Satellites → Global Position System

Short-Term: Advancements in industry....

- Accelerator, Magnet, Cryogenics, Detectors & Instrumentation, Electronics, …
  → Biology and Medicine: NMR & PET scanners, Ion therapy/cancer treatment
- Information Technology: WWW, GRID, Genome Analysis, …

What we do today will probably impact and be in your life in 10-20 years...