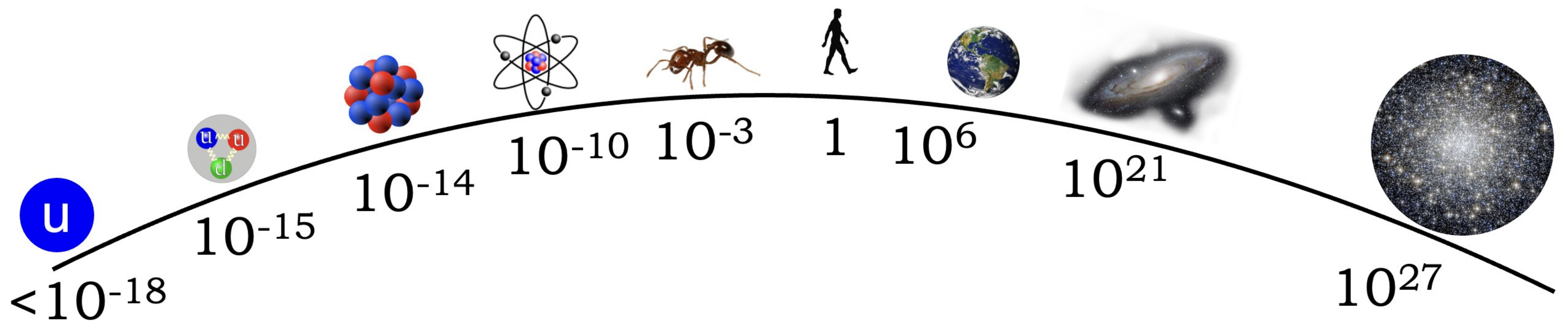




Why do we need a Future Collider



Universe scales in metres

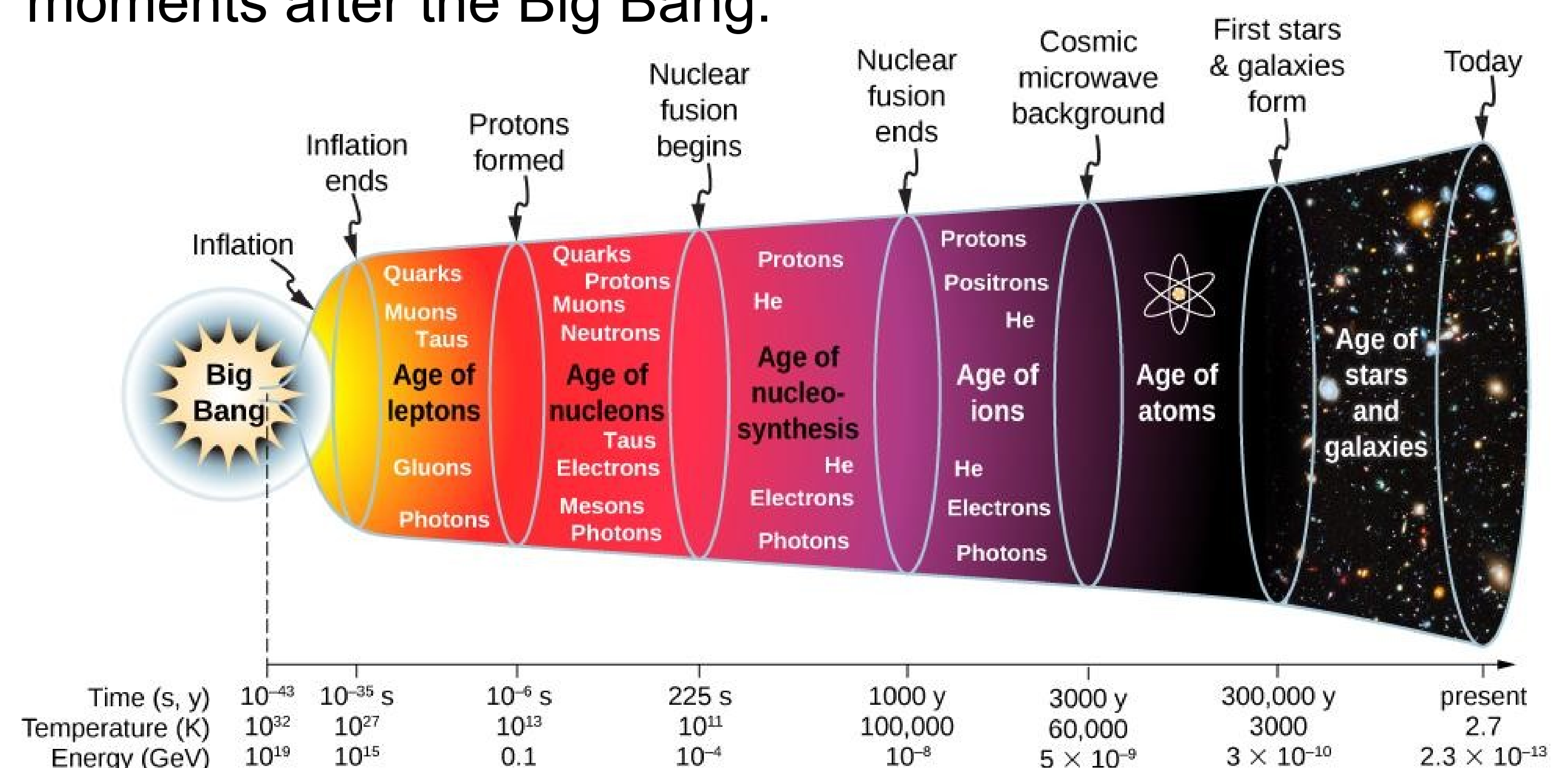


Particle physics studies the tiniest objects of Nature.

$$\text{Physical size} \sim \frac{1}{\text{Energy}}$$

Just as in a microscope, our ability to resolve small details in our sample improves with the energy of the particles that we use to probe it.

The energy density and temperature that are produced in particle collisions are similar to those that existed a few moments after the Big Bang.



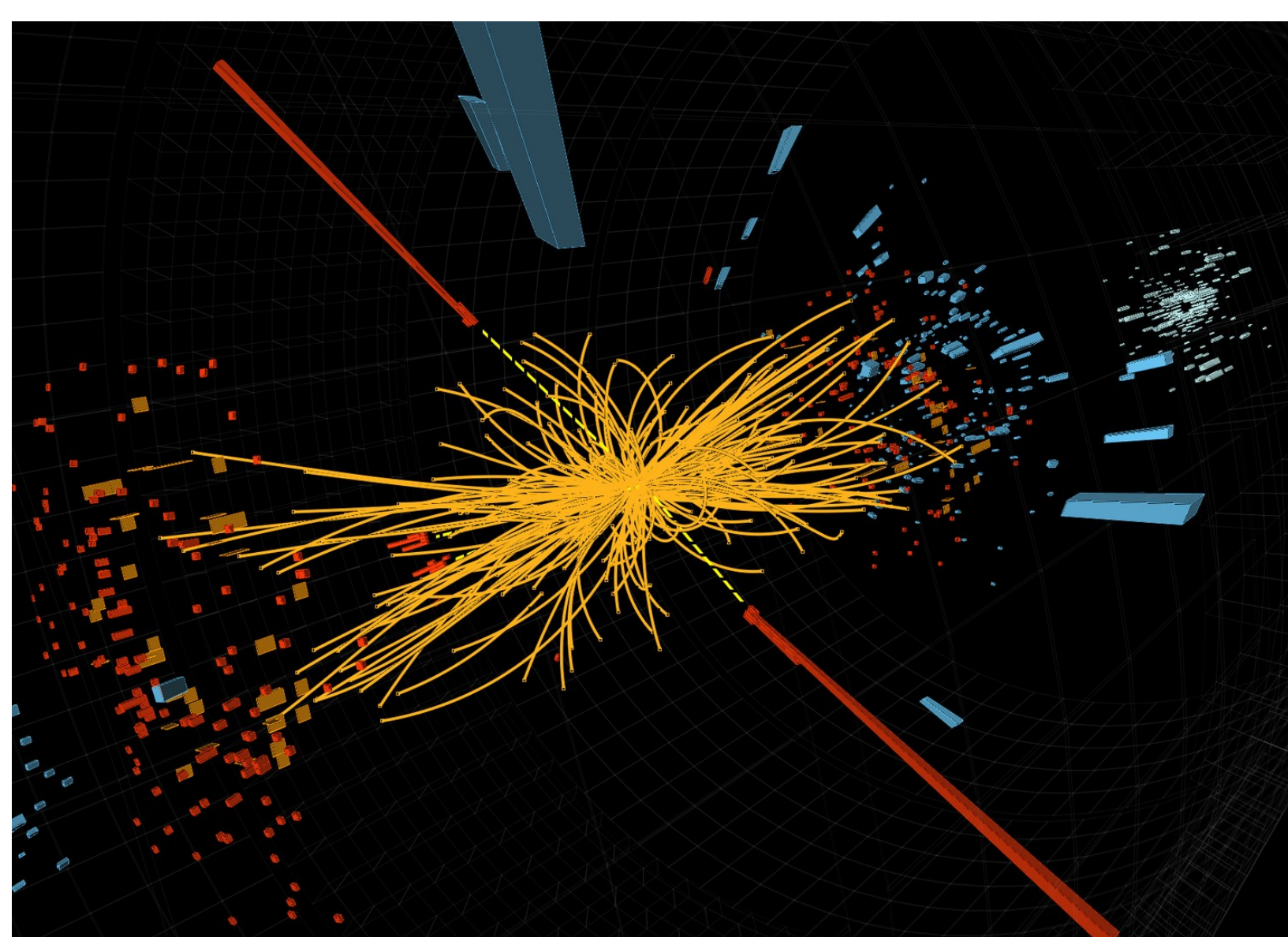
Future colliders will extend our study of the history of the Universe beyond the reach of the current machines.

Particles on tap

Energy and mass are two sides of the same coin. Mass can transform into energy and vice versa in accordance with Einstein's famous equation.

$$E = mc^2$$

Colliders can study ultra-rare processes in the controlled environment of the laboratory.



Fundamental physics

What is dark matter made of?

What is accelerating the expansion rate of the universe?

Why is the universe only made of matter?

Future colliders will breach new frontiers in energy and intensity to boost our ability to understand particles and their relations.

