

Estimating the Neutrino Mass From Observational Cosmology

Omega Centauri

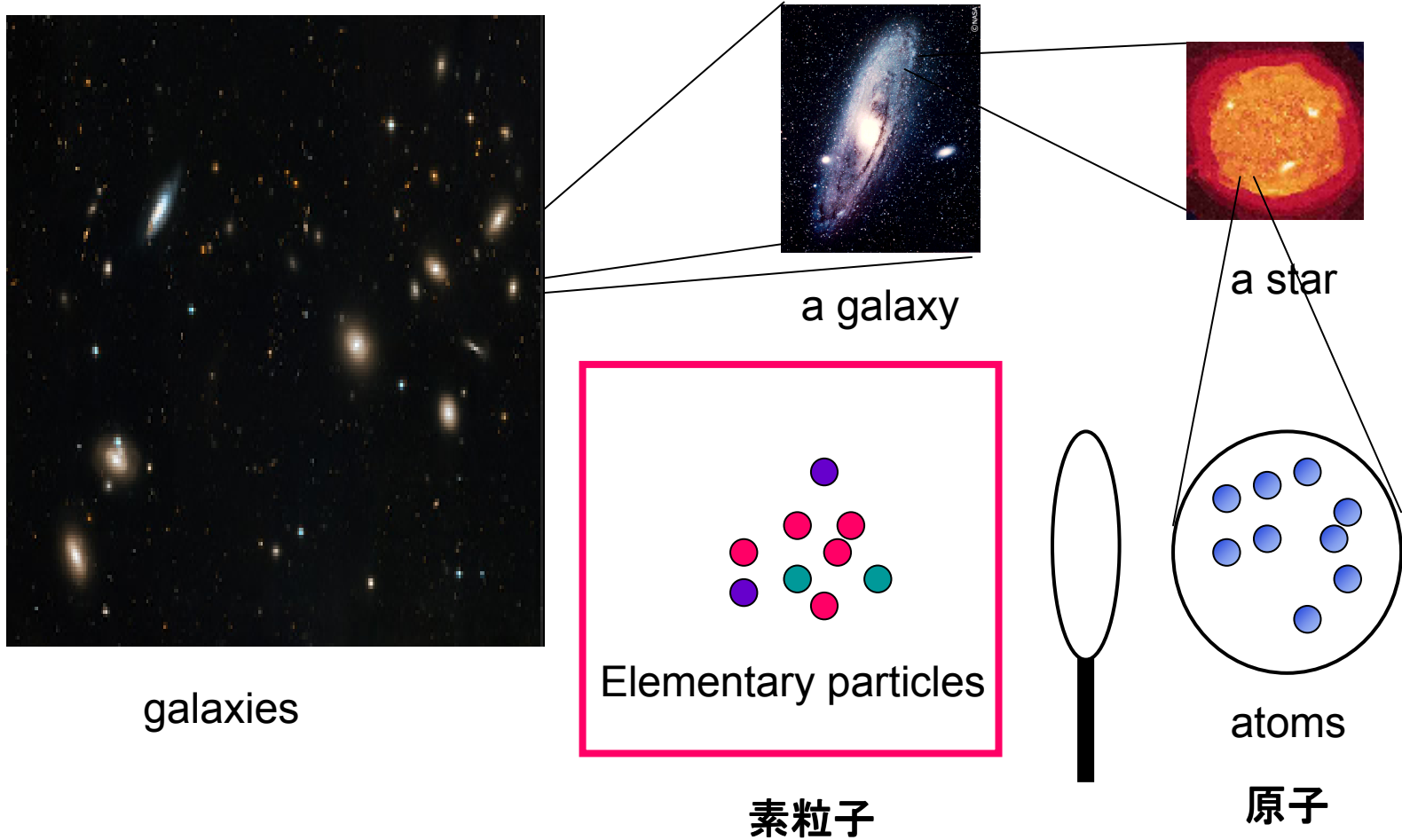
～宇宙の観測からニュートリノの質量を調べる～

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Photo. Takanori Kasano

In the Sky...



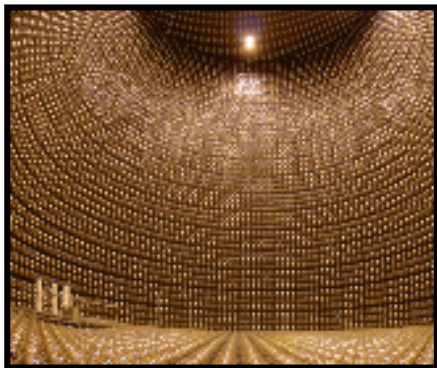
Now we focus on Elementary particles.

What Is the Elementary Particle?

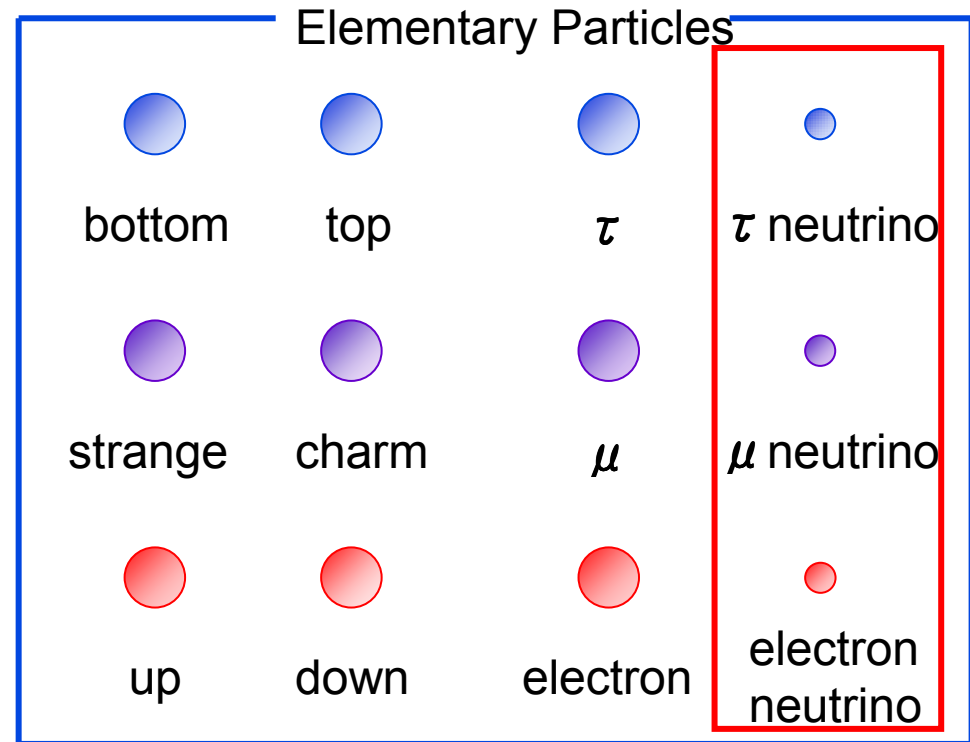
- It is the smallest thing in the world!!

$$\begin{aligned}
 E\psi &= (-i\alpha \cdot \nabla + \beta m)\psi \\
 R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}R + \Lambda g_{\mu\nu} &= \frac{8\pi G}{c^4}T_{\mu\nu} \\
 \left\{ \square + \left(\frac{mc}{\hbar}\right)^2 \right\} \psi(x) &= 0 \\
 (i\hbar\gamma^\mu \partial_\mu - mc)\psi(x) &= 0
 \end{aligned}$$

physical theory



Super Kamiokande
physical experiment



There are Problems...

- Neutrino mass
- Some particles have not been found...
and so on...