

Today: holiday to celebrate new young adults



traditional way

But some of young adults get carried away.



Non traditional way

Purpose of this workshop is also non traditional / ambitious

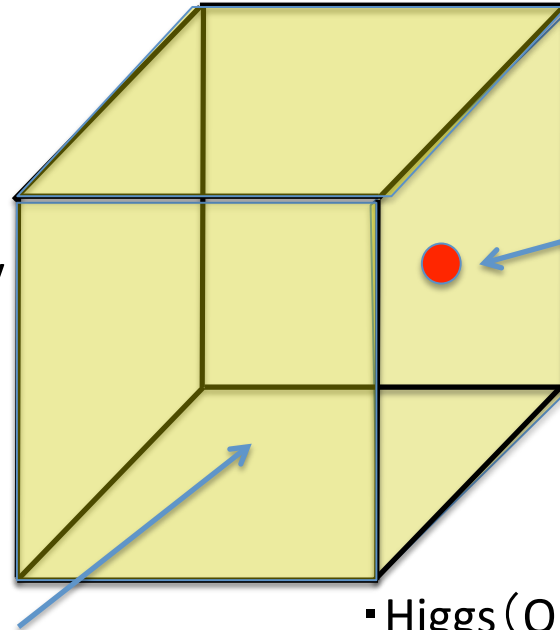
Research on
Space-time structure
and vacuum structure
using particles
and the Universe.
Particle itself
is not a target.

- Universe (birth and evolution)
- Dark energy

Space-time structure
at particle size
Vacuum structures
at both
particle and Universe
sizes

Space-Time

- Supersymmetry
- Unify the Gravity and Particle physics
- Extra dimension



Particle

Vacuum

- Higgs (Origin of mass)
- Spontaneous symmetry breaking
→ origin of variety

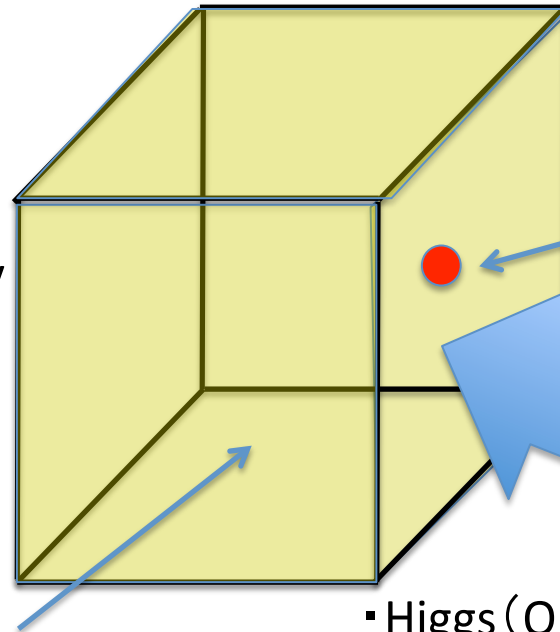
Approach I

Research on Space-time structure and vacuum structure using particles.

Higgs boson and SUSY particles at LHC are promising tools to probe Vacuum and Space-time.

Space-Time

- Universe (birth and evolution)
- Dark energy



- Supersymmetry
- Unify the Gravity and Particle physics
- Extra dimension

Particle

LHC
ILC/FCC

Vacuum

- Higgs (Origin of mass)
- Spontaneous symmetry breaking → origin of variety

Approach II

Research on Space-time structure and vacuum structure using particles.

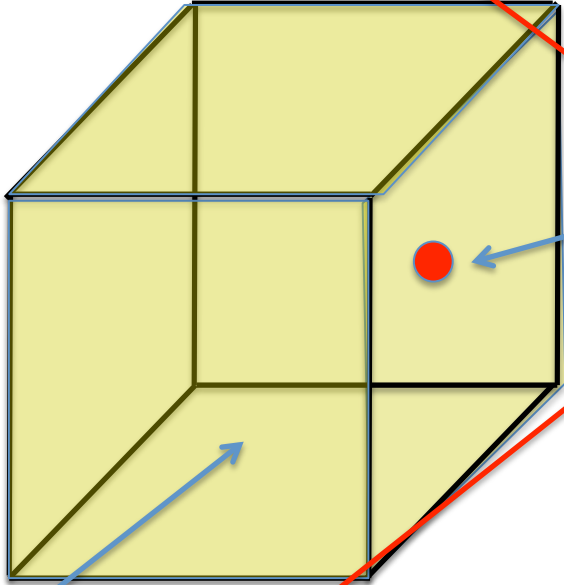
Cosmology/DM/DE/GW are also useful to research space-time/vacuum. We need to extend studies into the relation between ST and Particles

Early Universe
DM,DE,GW



Space-Time

- Supersymmetry
- Unify the Gravity and Particle physics
- Extra dimension



Particle

Vacuum

- Higgs (Origin of mass)
- Spontaneous symmetry braking → origin of variety

Approach III

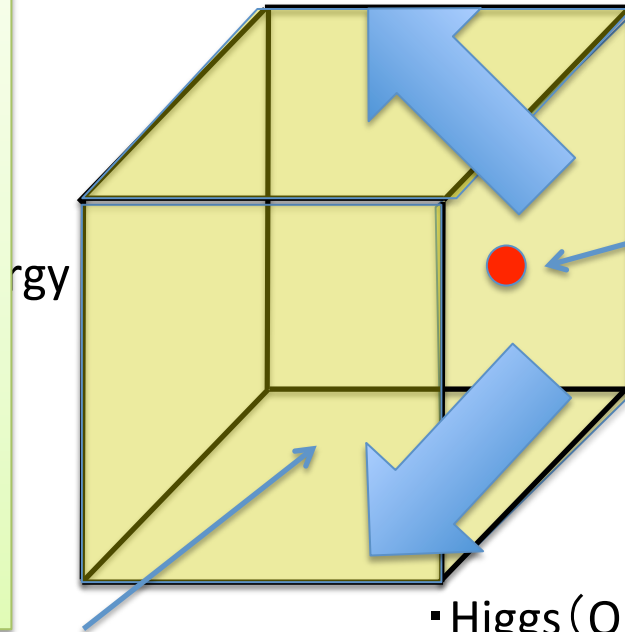
Research on Space-time structure and vacuum structure using particles.

Non accelerator experiments using

- precise techniques
- cold atoms
- intensive photon
- etc

Space-Time

- Supersymmetry
- Unify the Gravity and Particle physics
- Extra dimension



Particle

Vacuum

- Higgs (Origin of mass)
- Spontaneous symmetry breaking
→ origin of variety