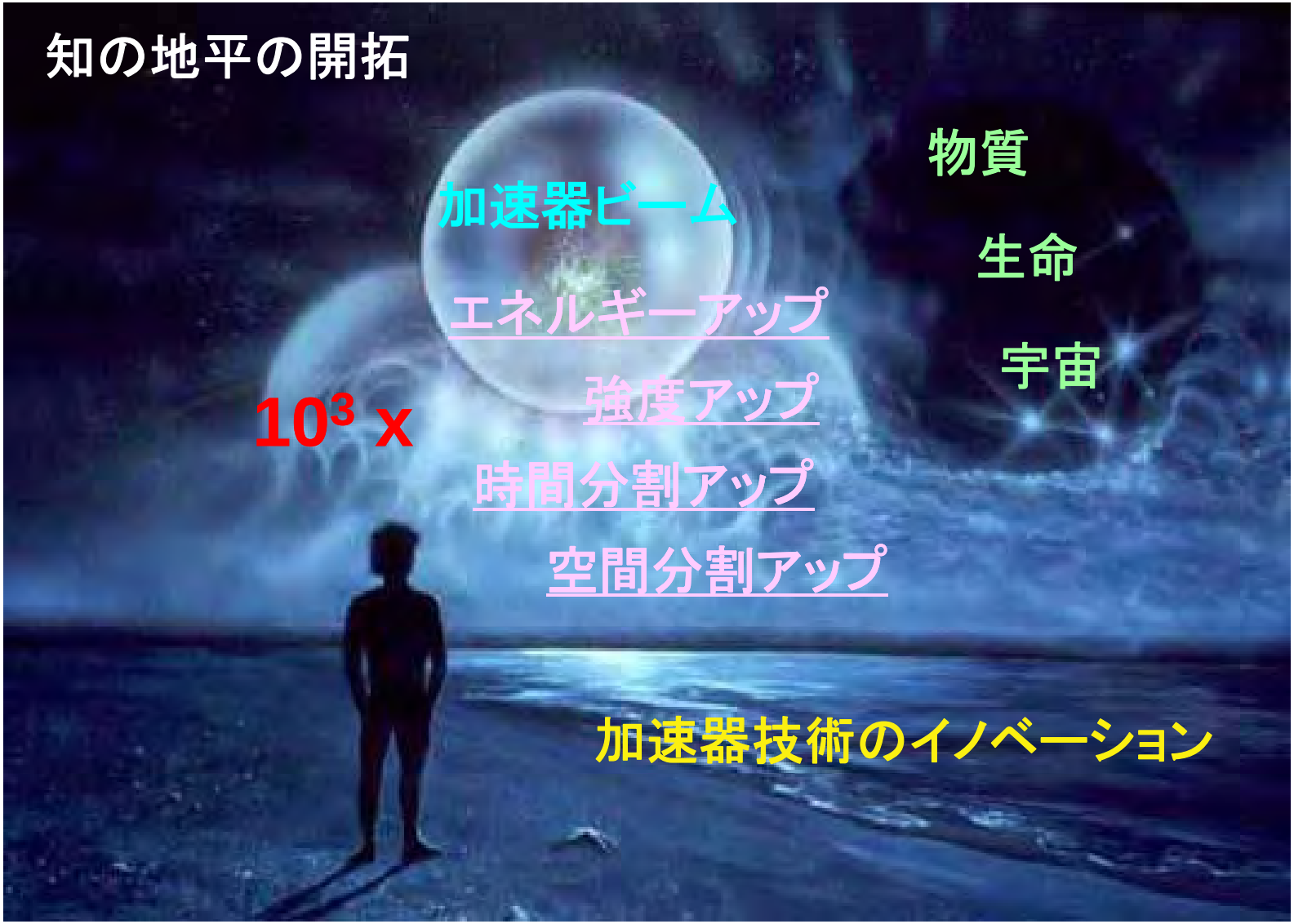
1. 大学共同利用機関の現状に関する所見

（２）　新たな学問領域の創成に向けた取組の現状と課題、今後の見通し



1000 times higher energy

Acceleration Technology

1 PeV=10^{15} eV

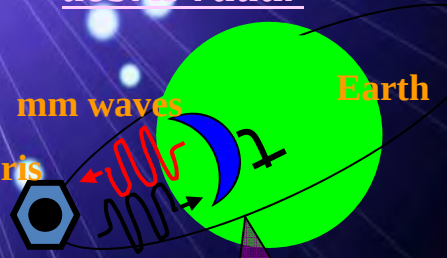
Laser-plasma LC

“ New paradigm”

Leptogenesis

SUSY breaking

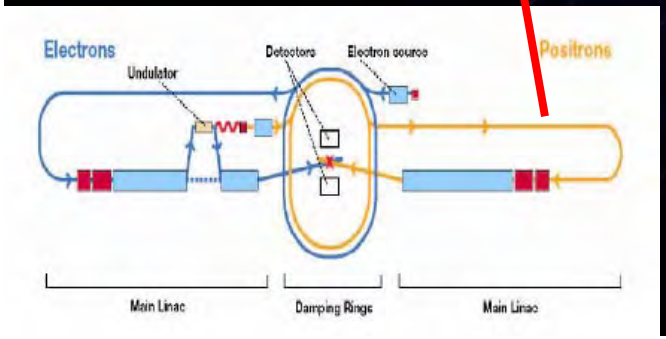
Earth-based space debris radar



Two-beam LC

Extra dimension
Dark matter
Supersymmetry

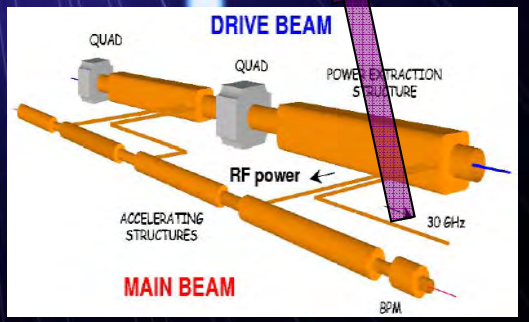
Ultra-High Voltage STEM with Superconducting RF cavity



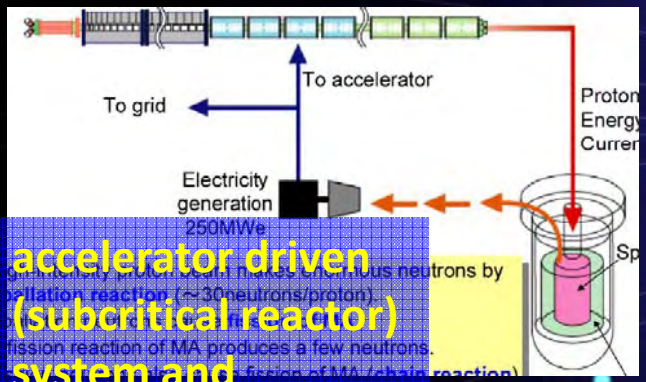
ILC

1 TeV=10^{12} eV

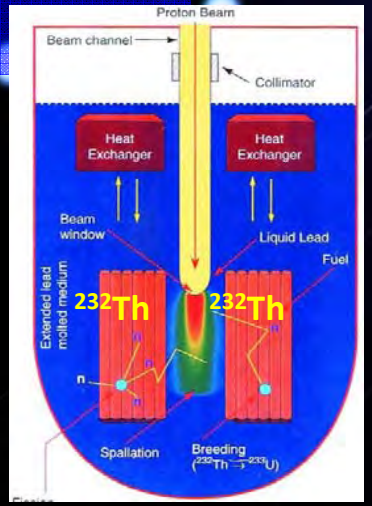
“Standard model”
Higgs
Quarks
Leptons



1000 times more powerful beam



accelerator driven (subcritical reactor) system and nuclear waste transmutation system



100 MW Beam Power

Inertial Fusion

Nuclear waste processing

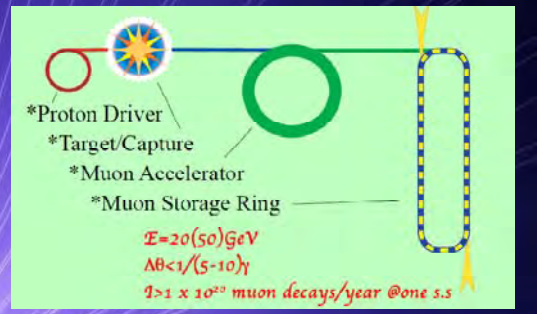
Brighter neutron source

Muon Collider

Neutrino Factory

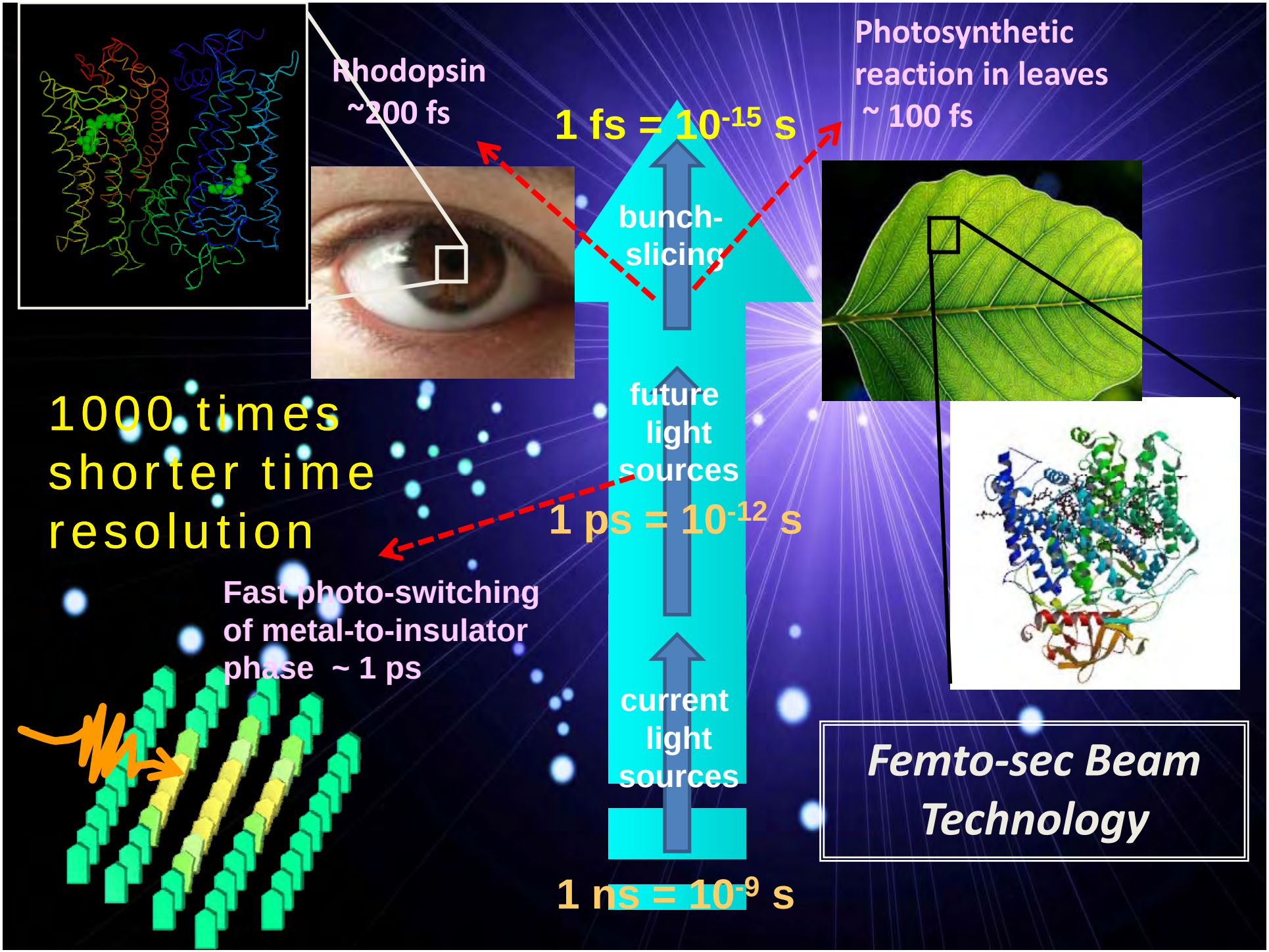
Linear Collider

100 kW Beam Power



Muon-collider
Neutrino Factory

Super-conducting Accelerator Technology


Rhodopsin
~200 fs
1 fs = 10-15 s
Photosynthetic
reaction in leaves
~ 100 fs
bunch-
slicing
1000 times
shorter time
resolution
future
light
sources
1 ps = 10-12 s
Fast photo-switching
of metal-to-insulator
phase ~ 1 ps
current
light
sources
1 ns = 10-9 s
Femto-sec Beam
Technology