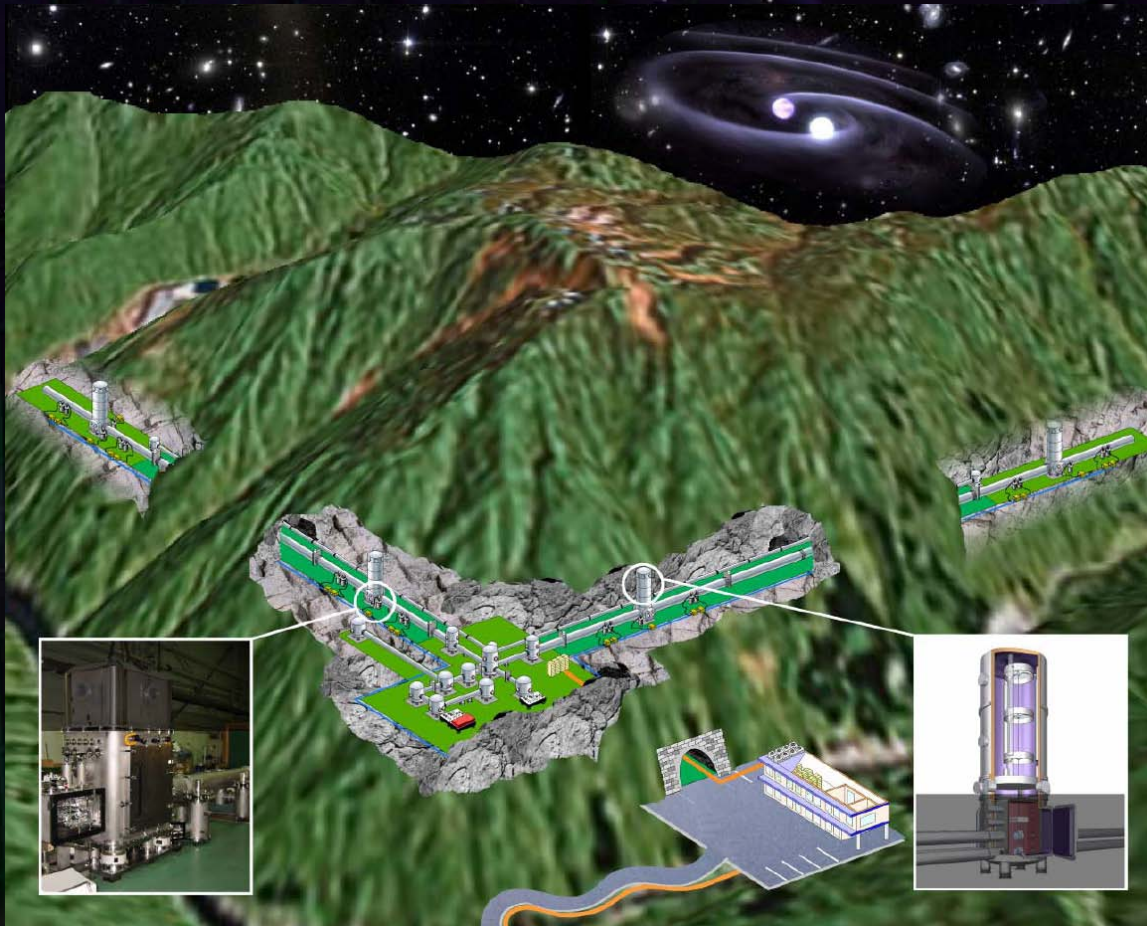


# Special working group for LCGT Roadmap



**Masaki Ando**  
(Department of Physics,  
Kyoto University)

On behalf of LCGT  
special working group

# LCGT Roadmap Special working group

---

## Scope

To recommend the roadmap to realize bLCGT, including design, research, development, performance test, installation, and shakedown procedures.

This opportunity is the kick-off of this working group. Detailed tasks and scope are not determined yet.

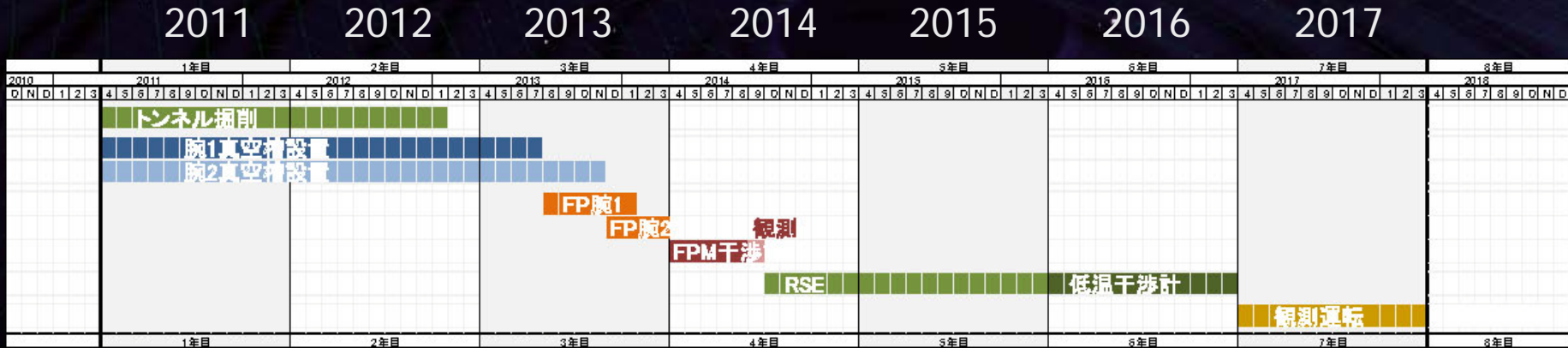
## Agenda

Schedule as the boundary conditions provided by management group and sub-groups

Configuration and strategy

Discussions

# Schedule



iLCGT  
 Tunnel, Vacuum system,  
 Laser, Input optics,  
 Suspension,  
 Fabry-Perot-Michelson  
 interferometer  
 Control and DAQ system

bLCGT  
 Power-recycling, RSE  
 Cryogenics  
 Sensitivity and stability

Observation

# Basic Policy in LCGT

LCGT is an observatory, not an R&D instrument.  
Performance of each component should be tested before its installation to LCGT.

「LCGTの推進について：基本的な考え方」

梶田先生 (2009.11.30)

•基本方針1: LCGTをR&Dマシンとはしない。

これはあくまで観測のマシンであるので、R&Dは例えばCLIOなどで行う。  
R&Dの結果十分LCGTに入れて効果で出ると分かったもののみを入れる。

•基本方針1.5: 上記基本方針1は8年目からの運転についてもあてはめる。  
十分なR&D成果が出ているもののみ入れる。つまり、full LCGTに入れる  
となっても、R&Dの成果が十分でなければいけない。

•基本方針2:

上記を踏まえて、LCGT, CLIO, ...を用いた8年目当初までのロードマップ  
を作成する必要あり。

# Important discussions

---

- (1) The schedule at LCGT is be extremely tight. Moreover the working environment at LCGT underground site is not good. Therefore we should be ready for the efficient installation and shakedown at the site; we should spent much efforts on design, tests, and scheduling of each components before its installation.
- (2) Commissioning procedure. In addition to the sensitivity, stability of the interferometer operation is important for GW detector. We should construct the interferometer step-by-step, such as one-arm operation, two-arm operation, recombined (iLCGT), RSE. We should clearly define the success criteria at each step, especially on sensitivity, stability and amount of observaton data.

# Important discussions (contd.)

---

- (3) Installation procedure of the recycling mirrors.  
RES will be installed just after iLCGT. Two additional mirrors (power-recycling and signal-extraction mirrors) should be installed at the same time. For convenience of shakedown, we should seriously prepare the bypass setup for the power recycling mirror.
  
- (4) Importance of an international collaboration.  
Although sufficient technical feasibility has already been accomplished for RSE, an international collaboration is highly required for certain success of LCGT.