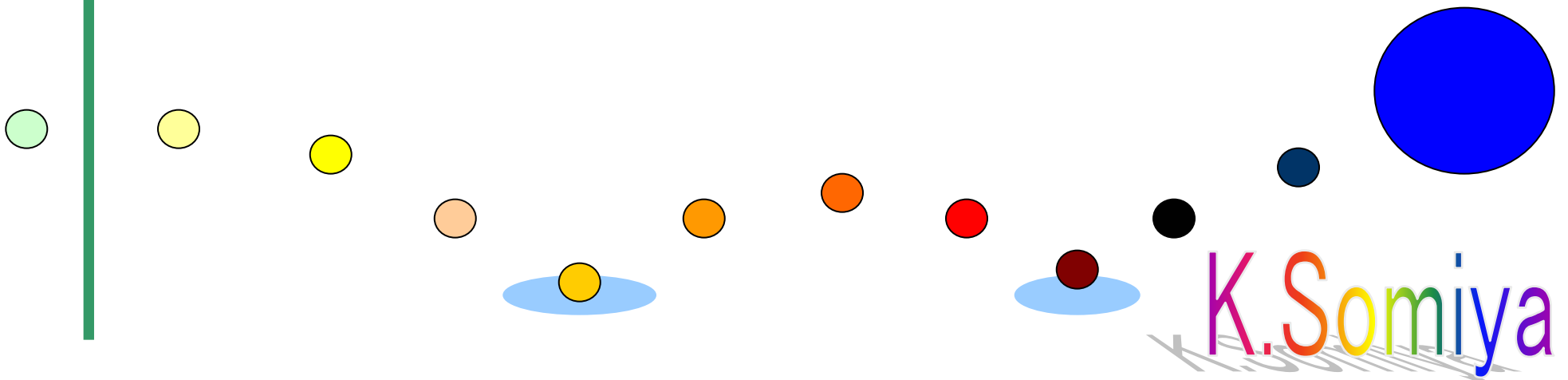


# ELiTES WP3 telecon

Jun. 2012

Tokyo Inst of Technology  
Kentaro Somiya



# Scope of WP3

## Cryogenic-related issues

- Contamination control
- Cryo-cooler vibration isolation
- Cooling/Heating time reduction
- Scattering light



These can be included in WP3

## Cryogenic-unrelated issues

- Gravity-gradient noise reduction
- Underground-related issues (tunnel tilt etc.)

# Current members

KAGRA: S.Miyoki, T.Uchiyama, K.Yamamoto, C.Tokoku,  
R.DeSalvo, N.Kimura\*, T.Suzuki\*, Y.Sakakibara,  
Y.Michimura, Y.Susa, S.Ueda, K.Somiya

Jena: R.Nawrodt, D.Heinert, J.Komma, G.Hofmann

Rome: F.Ricci, E.Majorana

Glasgow: S.Rowan, S.Hild

NIKHEF: J.van den Brand, A.Bertolini, M.Beker, D.Rabeling

Perugia: M.Punturo

Others: H.Yamamoto, M.Budroni

[ML subscribers in orange]

# Strategy of the study

- **ET >> KAGRA contributions**
  - ~ sharing information of silicon
  - ~ simulations? (GGN, thermal, etc.)
  - ~ visiting the site?
- **KAGRA >> ET contributions**
  - ~ sharing information of sapphire
  - ~ sharing problems of cryogenic/underground
- **Development of new ideas**
  - ~ Let's aim at publishing a paper in the end
- **People exchange**
- **Exchange lecture**

Some more details about the study

# Contamination control

## Current status on ET side

- TBD

## Current status on KAGRA side

- Facility subsystem has not been functioning but we just assigned the task to the ICRR's new associate professor.

## Related persons

S.Miyoki

# Vibration isolation of cryo-coolers

## Current status on ET side

- TBD

## Current status on KAGRA side

- This has been studied long in the group.

## Related persons

T.Uchiyama, T.Suzuki

# Cooling/Heating time reduction

## Current status on ET side

- TBD

## Current status on KAGRA side

- This has been an issue for KAGRA.
- A big problem to maintain a high duty factor
- High emissivity coating and the trade-off

## Related persons

K.Yamamoto, Y.Sakakibara, N.Kimura



# Scattering light

## Current status on ET side

- TBD

## Current status on KAGRA side

- High-angle scattering (est.  $\sim 10\text{ppm}$ )
- Baffle design study

## Related persons

K.Yamamoto, R.DeSalvo?

# GGN reduction

## Current status on ET side

- Site search and noise measurement (NIKHEF)

## Current status on KAGRA side

- Using the result provided by the NIKHEF people and Jan Harms

## Related persons

Jo, Mark, David  
T.Uchiyama, K.Yamamoto

# Underground-related issues

## Current status on ET side

- Site search and noise measurement (NIKHEF)

## Current status on KAGRA side

- Tunnel tilt issues (HV coupling -> WP1?)
- Cosmic ray isolation

## Related persons

Jo, Mark, David  
T.Uchiyama, K.Yamamoto

## Misc.

- More people?  
~ Andreas, Raffaele, S.Gossler, Keiko, etc.
- More topics?
- Concrete procedure of the work
- People exchange schedule
- Lecture exchange schedule
- Next WP3 telecon?