

SGD002-02

Room: 201A

Time: May 28 09:15-09:30

## Development of a compact absolute gravimeter (5)

Akito Araya<sup>1\*</sup>, Yoshiaki Tamura<sup>2</sup>, Tsuneya Tsubokawa<sup>3</sup>

<sup>1</sup>Earthquake Res. Inst., Univ. Tokyo, <sup>2</sup>National Astronomical Obs., Mizusawa, <sup>3</sup>Shin-ei Keisoku

Absolute gravimeters can measure gravitational acceleration with an accuracy of  $10^{-9}$ , and are useful for detecting crustal deformation and transfer of underground fluid, especially expected for diagnosing volcanic activity.

We have developed a prototype of a compact free-fall absolute gravimeter by means of new fringe-signal processing, correction of ground vibration using an active control of the reference mirror, and miniaturizing a free-fall mechanism using the "Silent Drop Method". As a result, the prototype can clearly detect earth tides and determine gravity better than 1 microgal for 2-day measurements. The details of the prototype, its performance including accuracy, and its practicality will be presented.

Keywords: geodesy, gravity, gravimeter, laser interferometer, free fall