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Development of a compact absolute gravimeter (6)

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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. We are working on further reduction of its size and improvement of portability in the field. The details of the improvements, the performance including accuracy, and its practicality will be presented.

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