

Abstract Submitted
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A Transportable Atom Gravimeter in Comparisons of Absolute Gravimeters. XU YAORYAO, DUAN XIAOCHUN, CUI JIAFENG, QI KUN, ZHOU MINKANG, HU ZHONGKUN, Huazhong University of Science and Technology, CENTER FOR GRAVITATIONAL EXPERIMENTS TEAM — With the rapid development of atom-interferometry-gravity-measurement over the last two decades, atom gravimeters have made high-precious gravity measurements in laboratory environments. Further development of atom gravimeters focuses on integrating the instrument for outdoor applications. Based on the research of our former laboratory-confined atom gravimeters, we have developed the transportable atom gravimeter (TAG). As achieving a sensitivity of $25\mu\text{Gal}/\text{Hz}^{1/2}$, we have accomplished the systematic error evaluation, enabling TAG to implement absolute gravity measurements with an accuracy of several μGals . To verify the accuracy of TAG, We carried out several comparisons between our transportable atom gravimeter and a falling-corner-cube one (FG5/FG5X) in our cave laboratory. In 2017, we transported TAG over 1000 kilometers to Beijing to participate in the 10th International Comparison of Absolute Gravimeters, and obtained the gravity measurement results with an accuracy of $3\mu\text{Gal}$.

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