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## Testing the weak equivalence principle using Gravitationally bound quantum states of ultracold neutrons

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Gravitationally bound quantum states of ultracold neutrons, which have been measured using pixelated silicon imaging sensor for cold neutrons[1], would be a unique and interesting system to see gravity-like phenomena beyond Newtonian expressions or the general relativity. We are now designing and developing the experimental details to manipulate this quantum system to fit our planning experiment of testing the weak equivalence principle, as the first physics target. In this presentation, current situation of developments are shown.

[1] G. Ichikawa, S. Komamiya, Y. Kamiya et al., PRL 112, 071101 (2014)

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