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Searching for a cosmological variation of the gravitational constant using strong gravitational fields

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Searching for varying dimensionless physical constants presents a meaningful characteristic in experimental and observational studies. One of the most valuable explorations of these variations could depend on the evolution of white dwarf stars. Applying the spectrum of white dwarf star: G191-B2B, we derive a robust limit on the cosmological variation of the gravitational constant $\dot{G}/G=(0.238\pm 2.959)\times 10^{-15}\text{yr}^{-1}$. This limit proposes a potential test of the framework of modern unification theories.

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