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BOUNDS ON GRAVITON MASS FROM STELAR ORBITS AROUND Sgr A*

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In this paper our achieved results on the bounding graviton mass by the observed stellar orbits around Sgr A* are given. By comparison of the observed orbits of bright stars in the Galactic center with their simulated orbits in Yukawa gravitational potential, we estimated the constraints on the parameters of this modified theory of massive gravity. Then, we connected one of these parameters with the Compton wavelength of the graviton and used it to estimate the graviton mass. In that way we obtained a new method of determining the upper limit of graviton mass, completely independent from other methods published until now. The constraints on the Compton wavelength of the graviton and its mass, obtained using this method, were in a good agreement with the corresponding LIGO results. This scientific research has been done at the Astronomical Observatory Belgrade, in cooperation with Vinča Institute of Nuclear Sciences.