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A magnified glance into the Dark Sector: Probing cosmological models with strong lensing in A1689

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In this work we constrain four alternative models to explain the late cosmic acceleration in the Universe: Chevallier-Polarski-Linder, interacting dark energy, Ricci holographic dark energy, and modified polytropic Cardassian. To test these models, we use mainly several strong gravitational lensing images of background galaxies produced by the galaxy cluster Abell 1689. We compare the value added by this cosmological probe with the power of other complementary probes: SNIa, BAO, and CMB. We present preliminary results for each model using these data. Finally, the SL measurements in galaxy clusters is a promising and powerful technique to constrain cosmological parameters considering the lens modeling is reconstructed for each cosmological model. Furthermore, this kind of test would be able to improve the constraints if the SL data of other galaxy clusters are considered.

Presenter: MAGANA, Juan (Institute of Physics and Astronomy Universidad de Valparaiso, Chile)

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