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Analyzing the geometrical and dynamical parameters of modified Teleparallel-Gauss-Bonnet model

To recreate the cosmological models, we employed the parametrization approach in modified teleparallel Gauss-Bonnet gravity. It has been interesting to apply the parametrization approach to investigate cosmological models. The real benefit of using this method is that the observational data may be incorporated to examine the cosmological models. Several cosmological parameters were examined, such as the Hubble parameter (H), the deceleration parameter (q), and the equation of state (EoS) parameter (ω). The results obtained are consistent with recent cosmological findings in the conventional scenario. A transition scenario from a decelerating stage to an accelerating stage of cosmic evolution has been observed. The EoS parameter is also in the quintessence phase, which drives the accelerating expansion of the Universe. Also, we look at the violation of strong energy conditions, which has become inevitable in the context of modified gravitational theory. Finally, we have performed the $Om(z)$ diagnostic and also obtained the age of the Universe by using the data from the cosmological observations.

Primary authors: Prof. MISHRA, Bivudutta (BITS-Pilani, Hyderabad Campus); Mr LOHAKARE, Santosh (BITS-Pilani Hyderabad Campus)

Presenter: Prof. MISHRA, Bivudutta (BITS-Pilani, Hyderabad Campus)

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