

ALLEVIATING TENSIONS IN COSMOLOGY

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The Big Bang theory of Cosmology has been the most accurate explanation of cosmic history till date. But it is plagued with some subtle issues which await resolution. I am interested in unravelling the subtleties of the universe at both large and small scales by studying astrophysical objects, phenomena, proven theories and observational data of the universe. I am interested in studying all aspects of the physics of Gravity (General Relativity, Quantum Gravity, Modified Theories of Gravity), Cosmology (Cosmic Microwave Background, Dark Matter, Dark Energy, Inflation, Bounce) and the interrelations between these subjects (for eg. explaining dark matter and dark energy by modified theories of gravity or searching for cosmological signatures of Quantum Gravity theories etc). I am also keen in examining high energy phenomena like Gamma Ray Bursts and Supernovae, both astrophysical and cosmological aspects. In this talk I shall discuss the results of some of my research works that deals with 1) application of modified quantum theory to inflation in order to explain the problem of quantum to classical transition of inflationary perturbations 2) study primordial black holes in the context of bouncing cosmology 3) constraining dark matter condensates 4) gamma ray bursts. In my talk I shall briefly discuss the motivation and interesting outcomes which I have obtained in these research works



Everyone is invited to attend

Head, PAMU