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Fast radio bursts as a probe to constrain primordial mass black holes made of dark matter

This abstract is primarily based on our recent work arXiv:2308.16604. Fast Radio Bursts (FRBs) can be used as a tool to understand different cosmological phenomena because of their distinct features, such as short pulse width, relatively high dispersion measure, etc. On the other hand, over the past decades, researchers have proposed different modified gravity models. In my talk, considering a generic modified gravity theory, I will show how it affects the properties of gravitational lensing in FRBs. Thereby, using a set of FRBs from the recent CHIME dataset, I will discuss how it can constrain the fraction of dark matter made up of primordial black holes in such a theory. I will further show that modified gravity adds a screening effect on gravitational lensing similar to the case when there is plasma in the path of the light ray acting as a scattering screen.

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