

KMI Colloquium

The pursuit of the most general gravity theory



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Abstract :

Recent observations strongly support that inflation (accelerated expansion of the universe) happened in the early universe and that the current expansion of the universe is again accelerating. Unfortunately, the origin of these accelerated expansions has not yet been identified, and so many models have been proposed. Recently, attempts to understand models proposed so far in a unified manner and to constrain models comprehensively from observations in such a framework have been done. In this talk, I will first introduce these unified theories and show how powerful and useful they are. Next, I will introduce my recent work on invertible transformation with derivatives. The relationship between sub-classes of such a unified model can be investigated through invertible transformation of variables. It is also useful to find yet another new class of models. However, in case that transformation involves derivatives, very surprisingly, necessary and sufficient conditions under which such transformation is invertible had not been known until our work gave them.



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