



Birkhoff's theorem in the $f(T)$ gravity

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Generalized from the so-called teleparallel gravity which is exactly equivalent to general relativity, the $f(T)$ gravity has been proposed as an alternative gravity model to account for the dark energy phenomena. In this letter we prove that the external vacuum gravitational field for a spherically symmetric distribution of source matter in the $f(T)$ gravity framework must be static and the conclusion is independent of the radial distribution and spherically symmetric motion of the source matter that is, whether it is in motion or static. As a consequence, the Birkhoff's theorem is valid in the general $f(T)$ theory. We also discuss its application in the de Sitter space-time evolution phase as preferred to by the nowadays dark energy observations.

Comments: 5ps

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