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The Symmetric Teleparallel Gravity

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Abstract: We study symmetric teleparallel (STP) gravity model, in which only spacetime non-metricity is nonzero. First we obtain STP equivalent Einstein-Hilbert Lagrangian and give an approach for a generic solution in terms of only metric tensor. Then we obtain a spherically symmetric static solution to the Einstein's equation in STP space-time and discuss the singularities. Finally, we study a model given by a Lagrangian 4-form quadratic in non-metricity. Thus, we seek Schwarzschild-type solutions because of its observational success and obtain some sets of solutions. Finally, we discuss physical relevance of the solutions.

Key Words: Non-Riemannian geometry, Non-metricity, Teleparallel gravity.

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