Static Spherically Symmetric Solutions in Extended Palatini Gravity SWAPNIL TRIPATHI, Physics Department, University of Wisconsin-Barron, GONZALO J. OLMO, Instituto de Estructura de la Materia, CSIC, Spain, HELIOS SANCHIS-ALEPUZ, Fachbereich Theoretische Physik, Institut fur Physik, Karl-Franzens-Universitat Graz, Austria — We consider static spherically symmetric stellar configurations in Palatini theories of gravity in which the Lagrangian is an unspecified function of the form $f(R; R_{\mu v}R^{\mu v})$. We obtain the Tolman-Oppenheimer-Volkov equations corresponding to this class of theories and show that they recover those of f(R) theories and General Relativity in the appropriate limits. We compute exterior vacuum solutions and comment on the possible expected modifications, as compared to GR, of the interior solutions.

Abstract APS

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