

We construct Lorentz-invariant massless/massive spin-2 theories in flat spacetime. Starting from the most generic action of a rank-2 symmetric tensor field whose Lagrangian contains up to quadratic in first derivatives of a field, we investigate the possibility of new theories by using the Hamiltonian analysis. By imposing the degeneracy of the kinetic matrix and the existence of subsequent constraints, we classify theories based on the number of degrees of freedom and constraint structures and obtain a wider class of Fierz-Pauli theory as well as massless and partially massless theories, whose scalar and/or vector degrees of freedom are absent. We also discuss the relation between our theories and known massless and massive spin-2 theories.