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Maria Lewtchuk Espindola, Universidade Federal da Paraíba, Brazil .
email: MISSING

ENVELOPE SOLUTIONS FOR PDES DEPENDING ON TWO DISJOINT SETS OF VARIABLES

There are a lot of applications for the envelope solutions to PDEs, the hypersurfaces that enclose one of the families of the hypersurfaces given by the complete solutions. The development and discussion of the existence of envelope solutions to PDEs that depends of two disjoint sets of variables are the main purpose of this research. As an example it is considered the canonical variables describing a mechanical system at the phase space in Hamiltonian Analytical Mechanics. As one of the possible extensions it will be discussed the development and the analysis of the existence of envelope solutions to the variational PDEs that involves functional depending of two disjoint sets of variables. As it occurs in Hamiltonian Analytical Mechanics applied to field theories where the dependence is of the field functions and the canonical variables represented by the density momenta.

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