

**ON THE STRUCTURE OF THE SINGULAR SET OF A PIECEWISE SMOOTH
MINIMAX SOLUTION TO THE HAMILTON–JACOBI–BELLMAN EQUATION**

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The properties of a minimax piecewise smooth solution of the Hamilton–Jacobi–Bellman equation are studied. It is known the Rankine–Hugoniot conditions are necessary and sufficient conditions for the points of nondifferentiability (singularity) of the minimax solution. We generalize this condition and describe the dimension of smooth manifolds contained in the singular set of the piecewise smooth solution in terms of state characteristics that come to this set. New structural properties of the singular set are obtained in the case when the Hamiltonian depends on the impulse variable only.

Keywords: Hamilton–Jacobi–Bellman equation, minimax solution, singular set, piecewise smooth solution, tangent space, Rankine–Hugoniot conditions.

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