ISSN 0081-5438, Proceedings of the Steklov Institute of Mathematics, 2024, Vol. 327, Suppl. 1, pp. S226–S238. © Pleiades Publishing, Ltd., 2024. Russian Text © The Author(s), 2024, published in Trudy Instituta Matematiki i Mekhaniki UrO RAN, 2024, Vol. 30, No. 3, pp. 241–254.

## Evolution Inclusions with State-Dependent Maximal Monotone Operators

## A. A. Tolstonogov<sup>1</sup>

Received April 4, 2024; revised May 15, 2024; accepted May 20, 2024

Abstract—The existence of an absolutely continuous solution of a differential inclusion whose right-hand side contains a time- and state-dependent maximal monotone operator and a nonconvex perturbation is proved in a Hilbert space. The proofs are based on our comparison theorems for inclusions with maximal monotone operators and a fixed point theorem for multivalued mappings. This approach allows us to extend the class of inclusions with maximal monotone operators for which existence theorems are valid and, as a result, to obtain significant results of this kind.

Keywords: maximal monotone operator, G-convergence, comparison theorem.

**DOI:** 10.1134/S0081543824070174

<sup>&</sup>lt;sup>1</sup>Matrosov Institute for System Dynamics and Control Theory, Siberian Branch of the Russian Academy of Sciences, Irkutsk, 664033 Russia

e-mail: alexander.tolstonogov@gmail.com