SOLUTIONS OF EVOLUTION INCLUSIONS GENERATED
BY A DIFFERENCE OF SUBDIFFERENTIALS

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An evolution inclusion with the right-hand side containing the difference of subdifferentials of proper convex lower semicontinuous functions and a multivalued perturbation whose values are nonconvex closed sets is considered in a separable Hilbert space. In addition to the original inclusion, we consider an inclusion with convexified perturbation and a perturbation whose values are extremal points of the convexified perturbation that also belong to the values of the original perturbation. Issues of the existence of solutions under various perturbations are studied and relations between solutions are established. The primary focus is on the weakening of assumptions on the perturbation as compared to the known assumptions under which existence and relaxation theorems are valid. All our assumptions, in contrast to the known assumptions, concern the convexified rather than original perturbation.

Keywords: evolution inclusions, difference of subdifferentials, relaxation.

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