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Ill-posed fuzzy initial-boundary value problems based on generalized differentiability and regularization. (English) Zbl 1375.35623

Summary: In this study, based on a new generalized differentiability and parametric representation for fuzzy valued functions, we discuss the existence of solutions for fuzzy partial differential equations (FPDEs) and their ill-posedness. A regularization method is required to recover the numerical stability. A stable approximation of the exact solution is obtained as an example of a Cauchy problem for the fuzzy Laplace equation.

MSC:
35R13 Fuzzy partial differential equations
35R30 Inverse problems for PDEs

Keywords:
fuzzy partial; fuzzy partial differential equation; generalized differentiability; ill-posedness; regularization method

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References:


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