

MATSUZAWA'S HEAT KERNEL METHOD FOR FUNCTIONAL EQUATIONS

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We consider the Hyers-Ulam stability of functional equations including a generalized quadratic functional equation in the spaces of distributions and Gelfand-Shilov generalized functions modulo bounded distributions and hyperfunctions.

To obtain these theorems for functional equations in generalized functions we make use of the heat kernel method of Matsuzawa effectively which represents various generalized functions as initial values of smooth solutions of the heat equation satisfying suitable growth condition.