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Atanaska Georgieva and Snezhana Hristova

LIPSCHITZ STABILITY OF DELAY NEURAL NETWORKS WITH
NON-INSTANTANEOUS IMPULSES

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Abstract: In this paper we consider delay neural networks in the case when the neurons are subject to a certain impulsive state displacement at fixed moments and the duration of this displacement is not negligible small (they are known as non-instantaneous impulses). We examine the stability of the equilibrium of the model. Several sufficient conditions for uniform Lipschitz stability of equilibrium of neural networks with time varying self-regulating parameters of all units and time varying functions of the connection between two neurons in the network are obtained. These sufficient conditions are explicitly expressed in terms of the parameters of the system and hence they are easily verifiable. The cases of time varying Lipschitz coefficients as well as non-Lipschitz activation functions are studied. The theory is illustrated on particular nonlinear neural networks.

**Hassan Al-Zoubi, Hamza Alzaareer, Tareq Hamadneh and
Mohammad Al Rawajbeh**

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Marko Kostić, Yogesh J. Bagul and Christophe Chesneau

GENERALIZED INEQUALITIES FOR RATIO FUNCTIONS OF TRIGONOMETRIC
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Abstract: The aim of this note is to propose several generalized inequalities for the ratio functions of trigonometric and hyperbolic functions. In some sense, it can be viewed as an addendum to the paper [2]. We basically follow the approach obeyed in this paper.

**Sa'adatul Fitri, Marjono, Derek K. Thomas and
Ratno Bagus Edy Wibowo**

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S. Leulmi and A. Ayadi

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The optimization method plays a very important role in this article, so we propose a modified conjugate gradient method DY, considering that the convergence of this method is given. The application of the proposed method is illustrated with an example, presented in the last section of this paper, showing the effectiveness of the modified conjugate gradient method DY developed in this work.

Sayantana Panja, Kushal Roy and Mantu Saha

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Abstract: In this paper we introduce some weak interpolative contractive type mappings and prove some fixed point theorems in the context of b -metric spaces. Examples are presented in strengthening the hypothesis of our theorems. The results so far obtained here are the generalization of several known fixed point theorems. Moreover as an application of our fixed point theorems to the homotopy theory and to the non-linear integral equation are shown here.

Tariq A. Aljaaidi and Deepak B. Pachpatte

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Abstract: In this paper, we establish a new generalization of Grüss-type inequalities whose functions has an integrable functions bounds using the ψ -Riemann-Liouville fractional integral operator which is the classical Riemann-Liouville fractional integral with respect to the function ψ . With the help of present fractional integral operator, some more integral inequalities of Grüss-type are derived and some special cases for the result obtained in the paper are also discussed.
