

Functional Analysis, Mathematical Physics, and Dynamical Systems

(FAMPDS)

Joint American-Ukrainian Virtual Colloquium Series

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Talk 12: Minimizing the Quadratic Functional on Hopfield Networks

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Abstract

We consider the continuous Hopfield model with a weak interaction of network neurons described by a system of differential equations with linear boundary conditions, and discuss the questions of finding necessary and sufficient conditions of solvability and construction of solutions of the given problem, turning into solutions of the linear generating problem, as the parameter ε tends to zero. We further construct an iterative algorithm for finding solutions with a quadratic rate of convergence and consider the problem of finding the extremum of the target functions on the problem's solutions. The results are illustrated with examples for the case of three neurons.

Friday, June 4, 10:00-11:00 AM (PDT), 20:00-21:00 (EEST)

Online via Zoom at

<https://fresnostate.zoom.us/j/5233106532>