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Results in Mathematics

Volume 72, Issue 4, 1 December 2017, Pages 1907-1918

On Regularity of Diagonally Positive Quadratic Doubly Stochastic Operators (Article)

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Abstract

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The classical Perron–Frobenius theorem says that a trajectory of a linear stochastic operator associated with a positive square stochastic matrix always converges to a unique fixed point. In general, an analogy of the Perron–Frobenius theorem does not hold for a quadratic stochastic operator associated with a positive cubic stochastic matrix. Namely, its trajectories may converge to different fixed points depending on initial points or may not converge at all. In this paper, we show regularity of quadratic doubly stochastic operators associated with diagonally positive cubic stochastic matrices. This is a nonlinear analogy of the Perron–Frobenius theorem for positive doubly stochastic matrices. © 2017, Springer International Publishing AG.

Author keywords

[cubic stochastic matrix](#) [Quadratic doubly stochastic operator](#) [regularity](#)

ISSN: 14226383

Source Type: Journal

Original language: English

DOI: 10.1007/s00025-017-0723-3

Document Type: Article

Publisher: Birkhauser Verlag AG

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