

Google matrix and Ulam networks of intermittency maps

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(Submitted on 19 Nov 2009)

We study the properties of the Google matrix of an Ulam network generated by intermittency maps. This network is created by the Ulam method which gives a matrix approximant for the Perron-Frobenius operator of dynamical map. The spectral properties of eigenvalues and eigenvectors of this matrix are analyzed. We show that the PageRank of the system is characterized by a power law decay with the exponent β dependent on map parameters and the Google damping factor α . Under certain conditions the PageRank is completely delocalized so that the Google search in such a situation becomes inefficient.

Comments: 7 pages, 14 figures, research done at Quantware [this http URL](#)
Subjects: **Information Retrieval (cs.IR)**; Disordered Systems and Neural Networks (cond-mat.dis-nn); Adaptation and Self-Organizing Systems (nlin.AO); Chaotic Dynamics (nlin.CD); Physics and Society (physics.soc-ph)
Journal reference: PhysRev E. 81, 03622 (2010)
Cite as: [arXiv:0911.3823v1](#) [cs.IR]

Submission history

From: Leonardo Ermann [[view email](#)]
[v1] Thu, 19 Nov 2009 15:24:51 GMT (727kb)

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