

Accepted Manuscript

An information dimension of weighted complex networks

Tao Wen, Wen Jiang

PII: S0378-4371(18)30135-3
DOI: <https://doi.org/10.1016/j.physa.2018.02.067>
Reference: PHYSA 19187

To appear in: *Physica A*

Received date: 18 March 2017
Revised date: 1 December 2017

Please cite this article as: T. Wen, W. Jiang, An information dimension of weighted complex networks, *Physica A* (2018), <https://doi.org/10.1016/j.physa.2018.02.067>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



An information dimension of weighted complex networks

Tao Wen^a, Wen Jiang^{a,*}

^a*School of Electronics and Information, Northwestern Polytechnical University, Xi'an, shaanxi 710072, China*

Abstract

The fractal and self-similarity are important properties in complex networks. Information dimension is a useful dimension for complex networks to reveal these properties. In this paper, an information dimension is proposed for weighted complex networks. Based on the box-covering algorithm for weighted complex networks (BCANw), the proposed method can deal with the weighted complex networks which appear frequently in the real-world, and it can get the influence of the number of nodes in each box on the information dimension. To show the wide scope of information dimension, some applications are illustrated, indicating that the proposed method is effective and feasible.

Keywords: Weighted complex networks, Information dimension, Box-covering algorithm

*Corresponding author at: Wen Jiang, School of Electronics and Information, Northwestern Polytechnical University, Xi'an, Shaanxi 710072, China, Tel: +86 02988431267. E-mail:jiangwen@nwpu.edu.cn;jiangwenpaper@hotmail.com

Download English Version:

<https://daneshyari.com/en/article/7375713>

Download Persian Version:

<https://daneshyari.com/article/7375713>

[Daneshyari.com](https://daneshyari.com)