

## Accepted Manuscript

A new coupled disease-awareness spreading model with mass media on multiplex networks

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PII: S0020-0255(18)30668-6  
DOI: <https://doi.org/10.1016/j.ins.2018.08.050>  
Reference: INS 13894



To appear in: *Information Sciences*

Received date: 29 November 2017  
Revised date: 19 August 2018  
Accepted date: 24 August 2018

Please cite this article as: Chengyi Xia, Zhishuang Wang, Chunyuan Zheng, Quantong Guo, Yongtang Shi, Matthias Dehmer, Zengqiang Chen, A new coupled disease-awareness spreading model with mass media on multiplex networks, *Information Sciences* (2018), doi: <https://doi.org/10.1016/j.ins.2018.08.050>

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**Highlights**

- A coupled disease-information SIR model with mass media is proposed on multiplex networks.
- The epidemic threshold is obtained with the microscopic Markov chain approach.
- The state transition process is described with the probability tree and differential equations.
- The Markov chain approach well predicts the results of numerical simulations

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