Towards an understanding of resilience with complex networks

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ABSTRACT

Resilience and robustness are key concepts to understand the behavior of complex systems. However, they are often confused. Whereas robustness refers to the tendency of systems to remain unchanged under perturbations, resilience emphasizes the tendency of the systems to adapt, thus involving some sort of change. The formalization of both concepts using complex networks can provide common methodological tools for different sciences. This study clarifies the distinction between resilience and robustness in complex networks and provides one plausible solution to formalize resilience.

KEYWORDS

resilience, robustness, complex networks, complex systems

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