

Abstract Submitted
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Properties

of four real world collaboration–competition networks¹ CHUN-HUA FU, XIU-LIAN XU, DA-REN HE, College of Physics Science & Technology, Yangzhou University — Our research group has empirically investigated 9 real world collaboration networks and 25 real world cooperation-competition networks. Among the 34 real world systems, all the 9 real world collaboration networks and 6 real world cooperation-competition networks show the unimodal act-size distribution and the shifted power law distribution of degree and act-degree. We have proposed a collaboration network evolution model for an explanation of the rules [1]. The other 14 real world cooperation-competition networks show that the act-size distributions are not unimodal; instead, they take qualitatively the same shifted power law forms as the degree and act-degree distributions. The properties of four systems (the main land movie film network, Beijing restaurant network, 2004 Olympic network, and Tao-Bao notebook computer sale network) are reported in detail as examples. Via a numerical simulation, we show that the new rule can still be explained by the above-mentioned model. [1] H. Chang, B. B. Su, *et al.* Physica A, 2007, 383: 687-702.

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