Supplementary information for "Identification of network topology variations based on spectral entropy"

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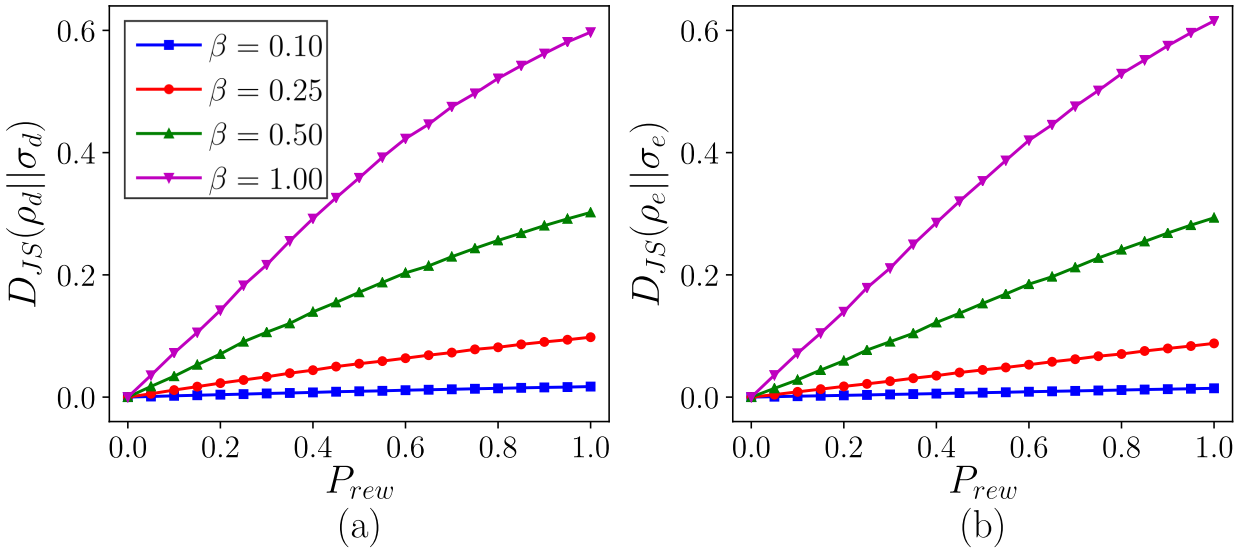

Fig. S1: The D_{JS} values as a function of rewiring probability P_{rew} for Watts and Strogatz's small-world network, where D_{JS} represents the difference between K-regular and WS small-world networks. (a) Based on the spectral entropy DD, dissimilarity values $D_{JS}(\rho_d||\sigma_d)$ between K-regular and WS small-world networks. (b) Dissimilarity values $D_{JS}(\rho_e||\sigma_e)$ between K-regular and WS small-world networks based on EE. The network size is $N = 100$, $\langle k \rangle = 4$, all the results are averaged over 100 independent realizations.

TABLE S1: The second line shows the S_b of the email temporal network $G(t_i), i = 0, 1, 2, 3$. The fourth line shows the S_b of the network $G(t_{i+1}) - G(t_i), i = 0, 1, 2$.

$S_b/log_2 N$	$G(t_0)$	$G(t_1)$	$G(t_2)$	$G(t_3)$
Fig. 10(a)	0.8135	0.8938	0.9179	0.9318
$S_b/log_2 N$	$G(t_0)$	$G(t_1) - G(t_0)$	$G(t_2) - G(t_1)$	$G(t_3) - G(t_2)$
Fig. 10(b)	0.8135	0.8312	0.8144	0.7992

TABLE S2: The second line shows the S_b of the email temporal network and their randomized models. The third line shows the S_b of the netscience network and their randomized models.

$S_b/log_2 N$	$dk0.0$	$dk1.0$	$dk2.0$	$dk2.1$	original network
email	0.9338	0.9338	0.9334	0.9325	0.9318
netscience	0.9427	0.9429	0.9424	0.9395	0.9385

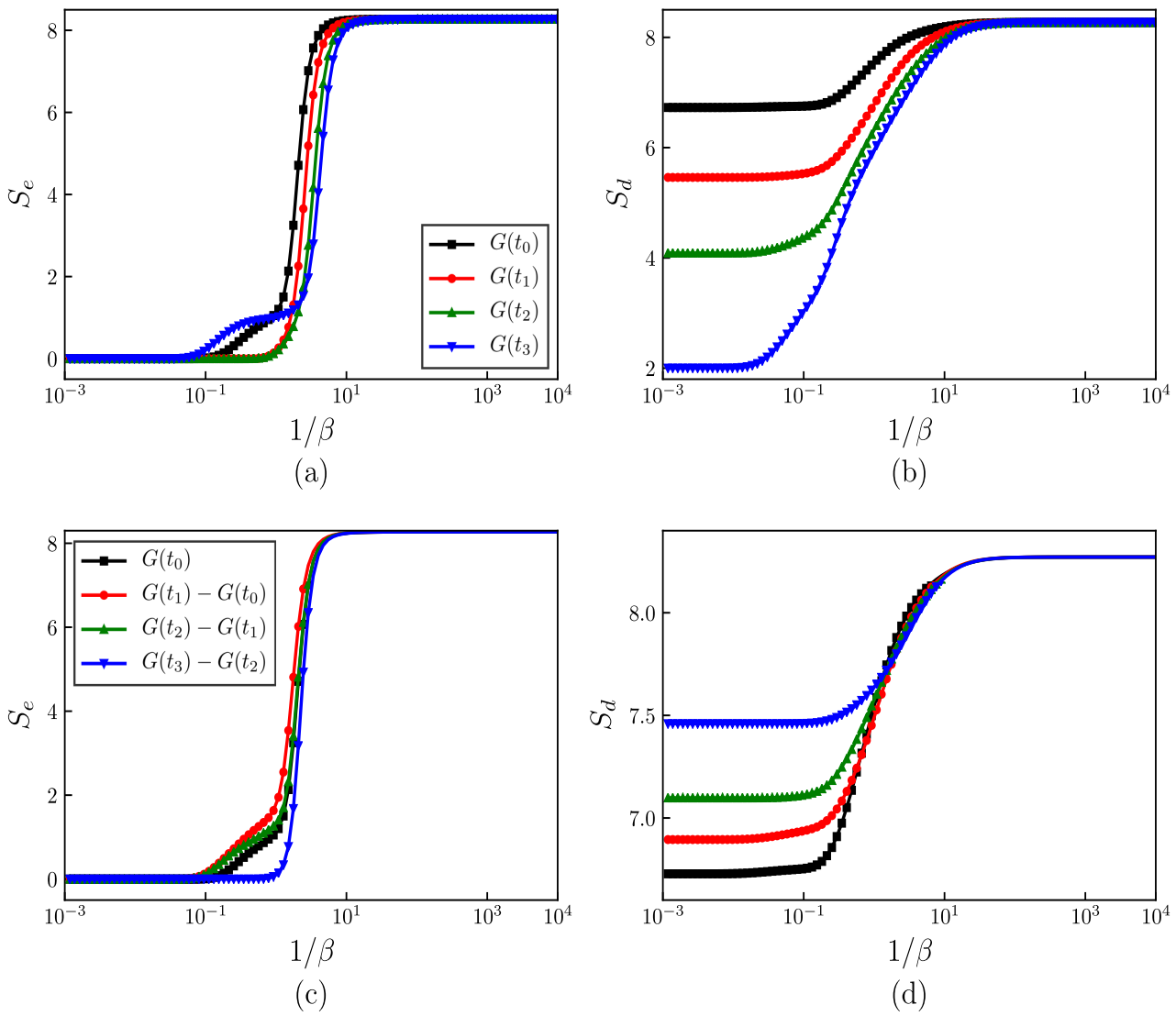

Fig. S2: The results of email temporal networks. (a) The S_e of $G(t_i), i = 0, 1, 2, 3$. (b) The S_d of $G(t_i)$. (c) The S_e of $G(t_{i+1}) - G(t_i), i = 0, 1, 2$. (d) The S_d of $G(t_{i+1}) - G(t_i)$.

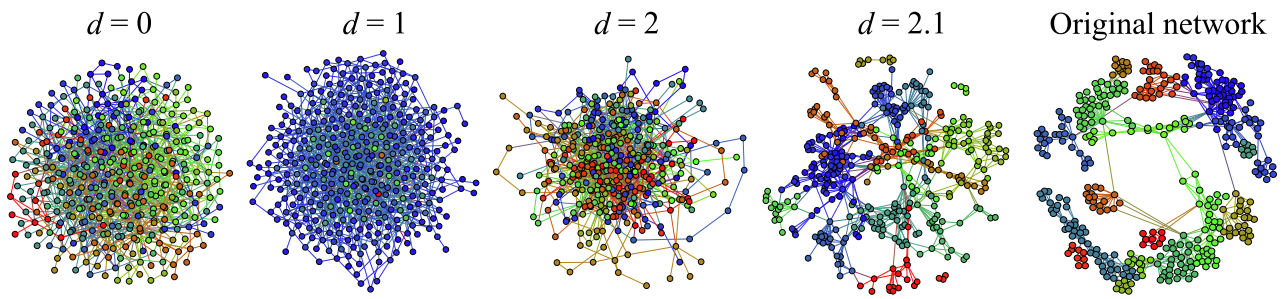

Fig. S3: Collaboration network netscience and four randomized models. From left to right are $0k$ randomized graph, $1k$ randomized graph, $2k$ randomized graph, $2.1k$ randomized graph, and original network, respectively.

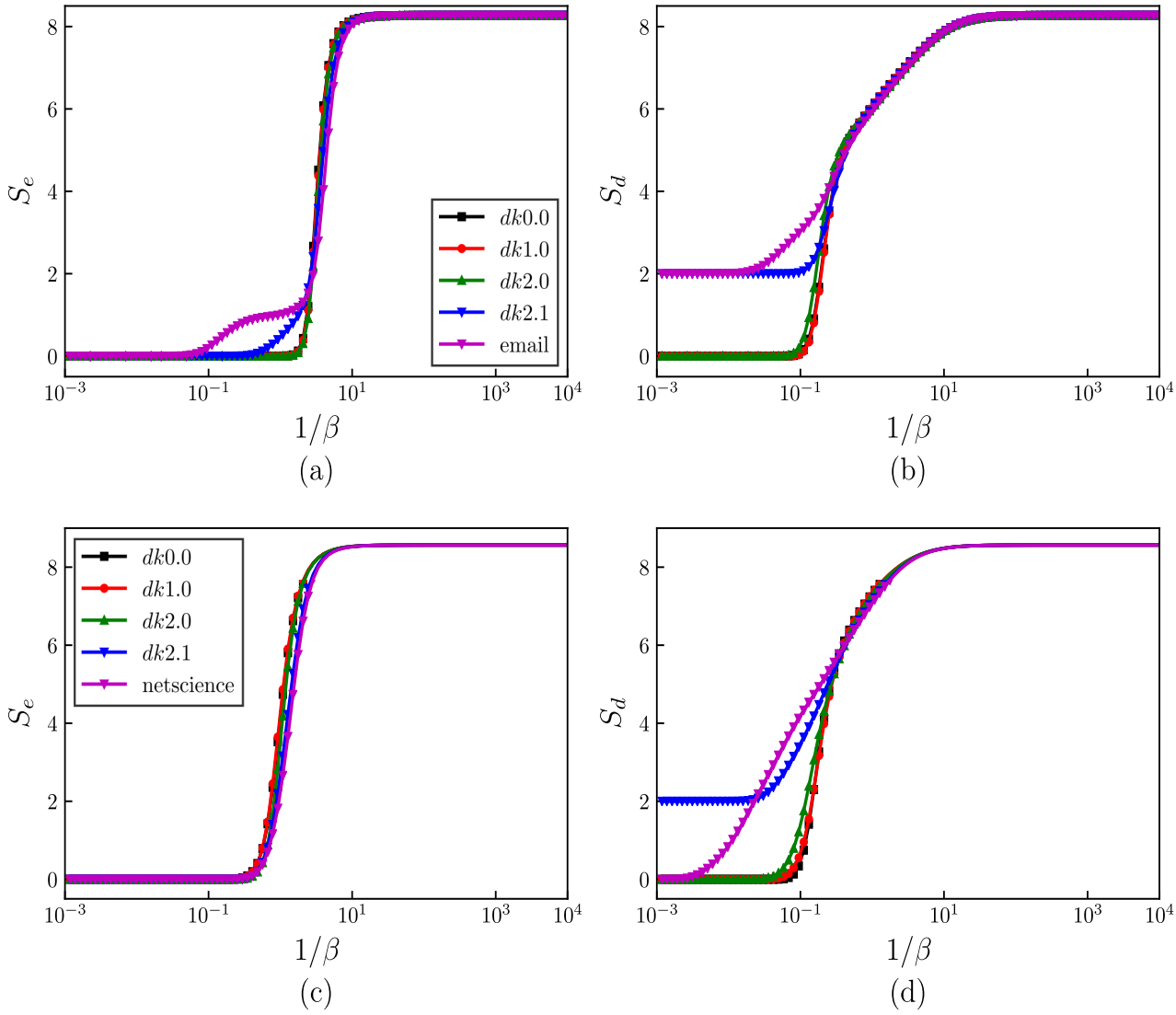

Fig. S4: (a) Shows the S_e of the email temporal network and their randomized models. (b) Shows the S_d of the email temporal network and their randomized models. (c) Shows the S_e of the netscience network and their randomized models. (d) Shows the S_d of the netscience network and their randomized models.