Online Supplementary Material for

Robust Attributed Network Embedding Preserving Community Information

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S.I The details of parameter setting

Table S. I Parameter setting.

Tasks	Datasets	hidden	Learning rate	Weight decay	dropout	epoch	$[\beta_1, \beta_2]$	w
Node classification	Cora	[1024,512]	0.0001	0	0.4	150	[1e3,1e4]	[1,1e-1,1e-3]
	Citeseer	[1024,512]	0.0001	0.0005	0.4	150	[1e4,1e4]	[1,1e-1,1e-3]
	Polblogs	[1024,512]	0.0001	0	0.4	150	[1e4,1e4]	[1,1e-1,1e-3]
	Pubmed	[512]	0.01	0	0.4	150	[1e3,1e4]	[1]
Anomaly Detection	Cora	[128,50]	0.001	0	0.4	800	[1e3,1e4]	[1,1e-1,5e-3]
	Citeseer	[128,50]	0.001	0.0005	0.4	800	[1e3,1e4]	[1,1e-1,5e-3]
	Polblogs	[512,256]	0.001	0	0.4	800	[1e3,1e4]	[1,1]
	Pubmed	[128,50]	0.001	0	0.4	800	[1e3,1e4]	[1,1e-1,1e-3]
Community detection	All four datesets	[128]	0.01	0	0.4	600	[1e4,1e4]	[1,1e-1]

β_1, β_2 correspond to the weights in (18). `$w$' refers to the weights in (1) when calculating the high-order proximity matrix. For example, `w=[1,1e-1,5e-3]' means that the high-order proximity matrix is $\tilde{A} = f(\mathrm{A} + 0.1A^2 + 0.005A^3)$.

S.II The results of robustness study

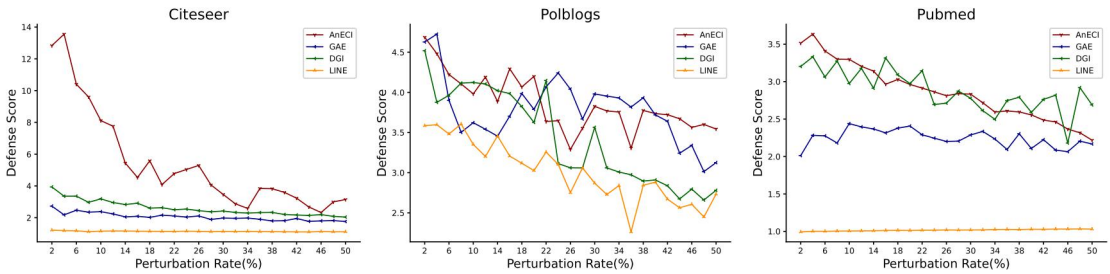

Figure S.I Defense score under random attack of different methods on Citeseer, Polblogs, and Pumed

S.III Results of effect of overlapped community *v.s.* hard partition

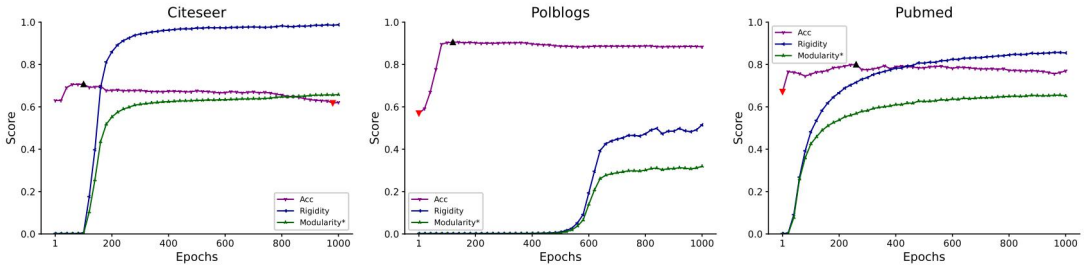

Figure S.II Node classification accuracy and modularity change during optimization process on Citeseer, Polblogs, and Pumed