

Table 1: Additional ablation experiment: DDMSL (c) is the model after removing the GCN module.

	Karate				Jazz				Cora MI				Power Grid				PGP			
Methods	PR	RE	F1	AUC	PR	RE	F1	AUC	PR	RE	F1	AUC	PR	RE	F1	AUC	PR	RE	F1	AUC
DDMSL	0.708	0.736	0.722	0.853	0.817	0.881	0.848	0.930	0.894	0.867	0.880	0.928	0.833	0.879	0.855	0.930	0.856	0.903	0.879	0.943
DDMSL(a)	0.264	0.910	0.379	0.827	0.254	0.683	0.367	0.741	0.277	0.626	0.384	0.722	0.459	0.605	0.522	0.706	0.366	0.857	0.513	0.846
DDMSL(b)	0.655	0.850	0.718	0.860	0.648	0.822	0.723	0.889	0.834	0.856	0.845	0.915	0.818	0.875	0.845	0.919	0.811	0.888	0.848	0.922
DDMSL(c)	0.339	0.185	0.236	0.592	0.931	0.111	0.1943	0.556	0.817	0.043	0.08	0.521	0.998	0.2756	0.432	0.638	0.997	0.656	0.792	0.823

Table 2: Additional generalization experiments: Test results on different network topologies after one training on a real network, where the original performance represents the test performance of DDMSL on real networks.

Training data	Cora MI				Power Grid				PGP			
Network	PR	RE	F1	AUC	PR	RE	F1	AUC	PR	RE	F1	AUC
Original performance	0.894	0.867	0.880	0.928	0.833	0.879	0.855	0.930	0.856	0.903	0.879	0.943
Small World	0.732	0.826	0.776	0.896	0.812	0.499	0.62	0.744	0.987	0.684	0.808	0.841
ER	0.722	0.584	0.645	0.779	0.349	0.687	0.463	0.773	0.997	0.614	0.632	0.731
BA Tree	0.482	0.832	0.609	0.866	0.872	0.774	0.82	0.881	0.947	0.672	0.786	0.834
BA Dense	0.749	0.683	0.715	0.829	0.654	0.354	0.459	0.667	0.972	0.598	0.741	0.798

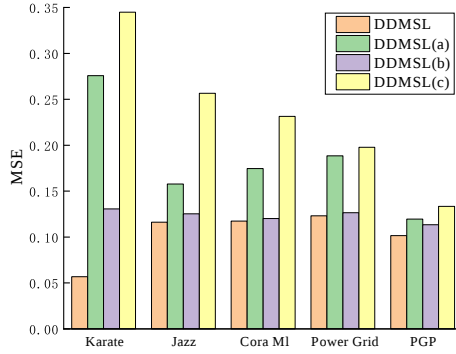


Figure 1: MSE error in ablations.

Table 3: Additional Time complexity experiment.

Test time	Cora-MI	Power-Grid	PGP
DDMSL	15.84s	22.19s	22.72s
SLVAE	4.77s	7.28s	11.29s
DDMIX	9.34s	15.7s	23.26s
GCNSI	1.4s	8.14s	15.41s
LPSI	2m14s	1m51s	21m37s
OJC	6m11s	50m17s	2h41m52s
NetSleuth	2m40s	4m39s	21m24s
Training Time	Cora-MI	Power-Grid	PGP
DDMSL	10m36s	16m57s	32m03s
SLVAE	18s	39s	1m10s
DDMIX	16m5s	24m17s	37m53s
GCNSI	3m53	20m6s	34m26s

Table 4: Additional experiments on real diffusion datasets.

	Twitter				Douban			
Methods	PR	RE	F1	AUC	PR	RE	F1	AUC
DDMSL	0.445	0.286	0.313	0.625	0.484	0.324	0.381	0.622
SLVAE	0.310	0.317	0.253	0.578	0.412	0.140	0.209	0.547