

Experimental Results of *A Fast Maximum k -Plex Algorithm Parameterized by the Degeneracy Gap*

The file mainly contains the following results.

- The detailed running time obtained by kPlexS, KpLeX and our algorithm for Network-Repo, 10th-DIMACS and 2nd-DIMACS graphs.
- The information of above graphs.
- The scatter figures which imply the underlying relation between degeneracy gap and the running time for Network-Repo graphs.

1 Running Time Comparison

This part presents the running time results for kPlexS, KpLeX and our algorithm. k is tested with 2, 5, 10, 15 and 20.

For Network-Repo and 10th-DIMACS, we show both the complete results and *non-trivial results* which exclude the extremely easy and hard graphs. (Our analysis in the paper is mainly based on non-trivial results.)

- **Extremely easy graph.** The graph that can be solved by kPlexS and our algorithm in 10 seconds for all tested k values is defined as *extremely easy graph*.
- **Extremely hard graph.** The graph that cannot be solved by any algorithm for any tested k value is defined as *extremely hard graph*.

For 2nd-DIMACS, we do not distinguish between complete and non-trivial results.

Running time is measured by seconds. OOT indicates that the algorithm runs out-of-time, i.e., optimal solution is not found within 1800s.

1.1 Complete Results for Network-Repo

Table 1: Running time of kPlexS, KpLeX and our algorithm for k=2 and 5

Graph	k=2			k=5		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
bio-celegans	0.00	0.00	0.00	0.00	0.00	0.00
bio-diseasome	0.00	0.00	0.00	0.00	0.00	0.00
bio-dmela	0.01	0.01	0.01	0.01	0.01	0.01
bio-yeast	0.00	0.00	0.00	0.00	0.00	0.00
ca-AstroPh	0.01	0.01	0.01	0.01	0.01	0.02
ca-citeseer	0.03	0.04	0.04	0.03	0.03	0.08
ca-coauthors-dblp	0.11	0.37	0.39	0.12	0.12	0.46
ca-CondMat	0.00	0.01	0.01	0.00	0.00	OOT
ca-CSphd	0.00	0.00	0.00	0.00	0.00	OOT
ca-dblp-2010	0.01	0.04	0.04	0.02	0.01	0.07
ca-dblp-2012	0.02	0.07	0.08	0.02	0.02	0.12
ca-Erdos992	0.00	0.00	0.00	0.00	0.00	OOT
ca-GrQc	0.00	0.00	0.00	0.00	0.00	OOT
ca-HepPh	0.01	0.01	0.01	0.01	0.01	0.01
ca-hollywood-2009	0.97	1.86	1.49	0.97	1.19	1.77
ca-MathSciNet	0.03	0.06	0.08	0.03	0.03	0.12
ca-netscience	0.00	0.00	0.00	0.00	0.00	0.00
ia-email-EU	0.02	0.02	0.03	0.01	0.01	0.05
ia-email-univ	0.00	0.00	0.01	0.00	0.00	0.01
ia-enron-large	0.09	0.09	0.43	0.08	0.08	10.91
ia-enron-only	0.00	0.00	0.00	0.00	0.00	0.00
ia-fb-messages	0.00	0.00	0.01	0.01	0.01	0.04
ia-infect-dublin	0.00	0.00	0.00	0.00	0.00	0.01
ia-infect-hyper	0.01	0.00	0.00	0.00	0.00	0.01
ia-reality	0.00	0.00	0.00	0.00	0.00	0.00
ia-wiki-Talk	3.27	3.84	1.51	2.31	4.84	257.87
inf-power	0.00	0.00	0.00	0.00	0.00	0.01
inf-roadNet-CA	0.22	0.22	0.50	0.27	0.27	OOT
inf-roadNet-PA	0.12	0.14	0.19	0.15	0.15	OOT
inf-road-usa	3.36	11.54	8.89	4.04	4.25	OOT
rec-amazon	0.01	0.01	0.06	0.04	0.04	144.84
rt-retweet	0.00	0.00	0.00	0.00	0.00	0.00
rt-retweet-crawl	0.39	0.42	0.39	0.50	0.58	0.45
rt-twitter-copen	0.00	0.00	0.00	0.00	0.00	0.00
scc_enron-only	0.00	0.00	0.00	0.02	0.02	0.03
scc_fb-forum	0.09	0.39	0.36	0.54	0.56	0.44
scc_fb-messages	0.10	0.01	0.01	0.09	0.10	0.01
scc_infect-dublin	0.01	0.01	0.01	0.00	0.00	0.01
scc_infect-hyper	0.00	0.00	0.00	0.00	0.00	0.00
scc_reality	0.76	0.08	0.07	14.05	18.64	102.76

scc_retweet	0.05	0.05	0.11	0.05	0.06	0.06
scc_retweet-crawl	0.00	0.00	0.01	0.00	0.00	0.01
scc_rt_alwefaq	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_assad	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_bahrain	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_barackobama	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_damascus	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_dash	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_gmanews	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_gop	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_http	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_israel	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_justinbieber	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_ksa	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_lebanon	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_libya	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_lolgop	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_mittromney	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_obama	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_occupy	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_occupywallstnyc	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_oman	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_onedirection	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_p2	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_qatif	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_saudi	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_tcot	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_tlot	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_uae	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_voteonedirection	0.00	0.00	0.00	0.00	0.00	OOT
scc_twitter-copen	0.85	0.71	17.36	0.89	0.76	OOT
sc-ldoor	20.25	22.80	OOT	OOT	820.11	OOT
sc-msdoor	11.79	13.32	OOT	1,259.54	456.11	OOT
sc-nasasrb	0.55	0.57	9.76	2.13	3.27	149.48
sc-pkustk11	1.23	1.36	0.70	95.99	10.79	2.70
sc-pkustk13	2.14	2.14	655.45	2.13	2.04	684.45
sc-pwtk	2.17	2.31	OOT	3.50	4.38	OOT
sc-shipsec1	0.13	0.16	0.31	0.15	0.15	6.01
sc-shipsec5	0.22	0.25	4.51	0.28	0.27	5.79
soc-BlogCatalog	OOT	OOT	OOT	OOT	OOT	OOT
soc-brightkite	0.02	0.02	0.01	0.01	0.01	OOT
soc-buzznet	OOT	OOT	OOT	OOT	OOT	OOT
soc-delicious	0.13	0.15	0.19	0.11	0.11	OOT
soc-digg	1,201.13	OOT	OOT	OOT	OOT	OOT
soc-dolphins	0.00	0.00	0.00	0.00	0.00	OOT
soc-douban	0.06	0.06	0.16	0.06	0.06	OOT

soc-epinions	0.04	0.04	0.07	0.03	0.03	OOT
socfb-A-anon	38.87	32.32	30.10	33.23	33.63	602.96
socfb-B-anon	41.21	38.22	146.31	45.97	42.63	OOT
socfb-Berkeley13	1.40	1.23	11.87	1.20	1.17	46.90
socfb-CMU	0.34	0.38	0.49	0.37	0.36	4.87
socfb-Duke14	4.72	54.69	248.48	7.63	702.81	OOT
socfb-Indiana	2.52	2.23	284.86	2.39	2.18	OOT
socfb-MIT	0.44	0.50	15.54	0.42	0.40	34.82
socfb-OR	0.58	0.67	1.54	0.41	0.43	1.51
socfb-Penn94	1.94	1.68	1.35	1.70	1.75	1.00
socfb-Stanford3	1.23	1.28	896.66	1.27	1.37	OOT
socfb-Texas84	2.51	5.36	345.57	1.94	2.02	499.56
socfb-uci-uni	13.93	21.14	20.09	27.94	26.90	25.43
socfb-UCLA	0.89	0.83	0.39	0.82	0.85	0.43
socfb-UConn	0.38	0.39	0.20	0.10	0.10	0.06
socfb-UCSB37	0.11	0.13	0.09	0.09	0.08	0.05
socfb-UF	2.79	4.67	905.85	1.64	1.80	OOT
socfb-Uillinois	2.53	2.38	29.53	2.46	2.44	OOT
socfb-Wisconsin87	1.02	1.04	10.38	1.00	0.99	0.75
soc-flickr	OOT	OOT	OOT	OOT	OOT	OOT
soc-flixster	1.97	39.09	36.31	1.95	190.51	OOT
soc-FourSquare	19.76	16.97	969.42	3.03	3.88	OOT
soc-gowalla	0.33	0.32	2.10	0.26	0.26	OOT
soc-karate	0.00	0.00	0.00	0.00	0.00	OOT
soc-lastfm	17.93	39.58	8.81	55.57	143.43	OOT
soc-livejournal	1.45	3.63	4.30	1.86	2.35	OOT
soc-LiveMocha	19.06	64.11	18.89	99.50	OOT	OOT
soc-orkut	394.51	OOT	OOT	OOT	OOT	OOT
soc-pokec	34.83	30.24	16.74	25.82	25.59	OOT
soc-slashdot	0.73	1.59	2.05	0.19	1.21	OOT
soc-twitter-follows	0.14	0.13	1.11	0.13	0.12	OOT
soc-wiki-Vote	0.00	0.00	0.00	0.00	0.00	0.00
soc-youtube	0.76	0.75	1.39	0.74	0.79	57.92
soc-youtube-snap	0.99	1.08	1.96	0.92	0.96	147.49
tech-as-caida2007	0.01	0.01	0.01	0.01	0.00	0.01
tech-as-skitter	1.03	1.42	OOT	0.87	0.90	OOT
tech-internet-as	0.01	0.01	0.01	0.01	0.01	0.02
tech-p2p-gnutella	0.04	0.04	0.03	0.01	0.01	0.03
tech-RL-caida	0.06	0.19	3.70	0.08	0.08	1.07
tech-routers-rf	0.00	0.00	0.00	0.00	0.00	0.00
tech-WHOIS	0.08	6.67	296.26	0.39	3.25	284.90
web-arabic-2005	0.01	0.03	0.03	0.01	0.01	0.04
web-BerkStan	0.00	0.00	0.01	0.00	0.00	0.00
web-edu	0.00	0.00	0.00	0.00	0.00	0.00
web-google	0.00	0.00	0.00	0.00	0.00	0.00
web-indochina-2004	0.00	0.00	0.00	0.00	0.00	0.01

web-it-2004	0.04	0.12	0.14	0.44	0.42	0.59
web-polblogs	0.00	0.00	0.00	0.00	0.00	0.00
web-sk-2005	0.01	0.02	0.03	0.01	0.01	0.05
web-spam	0.04	0.09	0.07	0.01	0.01	0.07
web-uk-2005	0.62	0.75	0.77	0.99	0.94	1.44
web-webbase-2001	0.00	0.00	0.00	0.00	0.00	0.01
web-wikipedia2009	0.76	1.03	7.66	0.81	0.84	360.17

Table 2: Running time of kPlexS, KpLeX and our algorithm for k=10 and 15

Graph	k=10			k=15		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
bio-celegans	0.00	0.00	0.00	0.00	0.00	0.00
bio-diseasome	0.00	0.00	OOT	0.00	0.00	OOT
bio-dmela	0.06	0.10	0.86	0.00	0.01	OOT
bio-yeast	0.00	0.00	OOT	0.00	0.00	0.00
ca-AstroPh	0.01	0.01	0.02	0.02	0.02	0.04
ca-citeseer	0.04	0.04	0.04	0.05	0.04	0.04
ca-coauthors-dblp	0.28	0.57	0.57	0.36	0.64	0.79
ca-CondMat	0.01	0.01	0.01	0.02	0.02	0.06
ca-CSphd	0.00	0.00	OOT	0.00	0.00	OOT
ca-dblp-2010	0.01	0.04	0.03	0.02	0.04	0.04
ca-dblp-2012	0.02	0.07	0.07	0.03	0.08	0.07
ca-Erdos992	0.00	0.00	0.00	0.00	0.00	OOT
ca-GrQc	0.00	0.00	0.00	0.00	0.00	0.00
ca-HepPh	0.02	0.01	0.01	0.02	0.00	0.01
ca-hollywood-2009	1.01	1.73	1.49	1.11	1.48	1.53
ca-MathSciNet	0.03	0.06	0.07	0.06	0.09	0.27
ca-netscience	0.00	0.00	0.00	0.00	0.00	OOT
ia-email-EU	0.03	0.04	0.31	0.17	0.18	33.93
ia-email-univ	0.01	0.01	OOT	0.00	0.01	OOT
ia-enron-large	0.09	0.08	OOT	0.14	0.12	OOT
ia-enron-only	0.00	0.00	0.00	0.00	0.01	OOT
ia-fb-messages	0.18	10.97	OOT	0.00	487.84	OOT
ia-infect-dublin	0.00	0.00	0.00	0.00	0.00	0.00
ia-infect-hyper	0.01	0.01	0.02	0.37	1.08	4.49
ia-reality	0.00	0.00	0.00	0.00	0.00	OOT
ia-wiki-Talk	4.38	6.86	OOT	14.46	126.63	OOT
inf-power	0.00	0.00	OOT	0.00	0.00	OOT
inf-roadNet-CA	0.24	0.23	OOT	0.24	0.22	OOT
inf-roadNet-PA	0.13	0.12	OOT	0.13	0.15	OOT

inf-road-usa	8.90	12.35	OOT	3.76	3.48	OOT
rec-amazon	0.03	0.05	OOT	0.03	0.05	OOT
rt-retweet	0.00	0.00	0.00	0.00	0.00	OOT
rt-retweet-crawl	0.37	0.31	0.30	0.33	0.28	0.24
rt-twitter-copen	0.00	0.00	OOT	0.00	0.00	OOT
scc_enron-only	0.00	0.00	0.02	0.00	0.00	0.00
scc_fb-forum	0.02	0.00	0.00	0.02	0.00	0.00
scc_fb-messages	2.15	1.98	7.09	0.10	0.01	0.01
scc_infect-dublin	0.01	0.01	0.00	0.01	0.01	0.02
scc_infect-hyper	0.00	0.00	0.00	0.00	0.00	0.00
scc_reality	12.37	5.83	5.16	27.16	58.27	OOT
scc_retweet	0.15	0.17	0.17	0.37	0.19	0.45
scc_retweet-crawl	0.00	0.00	0.00	0.00	0.00	0.01
scc_rt_alwefaq	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_assad	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_bahrain	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_barackobama	0.00	0.00	OOT	0.00	0.00	0.00
scc_rt_damascus	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_dash	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_gmanews	0.00	0.00	0.01	0.00	0.00	0.00
scc_rt_gop	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_http	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_israel	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_justinbieber	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_ksa	0.00	0.00	OOT	0.00	0.00	0.00
scc_rt_lebanon	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_libya	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_lolgop	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_mittromney	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_obama	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_occupy	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_occupywallstnyc	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_oman	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_onedirection	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_p2	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_qatif	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_saudi	0.00	0.00	0.00	0.00	0.00	OOT
scc_rt_tcot	0.00	0.00	0.00	0.00	0.00	0.00
scc_rt_tlot	0.00	0.00	OOT	0.00	0.00	0.00
scc_rt_uae	0.00	0.00	OOT	0.00	0.00	0.00
scc_rt_voteonedirection	0.00	0.00	0.00	0.00	0.00	0.00
scc_twitter-copen	2.06	0.67	1.12	2.29	1.97	29.23
sc-ldoor	10.55	11.26	OOT	7.94	7.91	OOT
sc-msdoor	5.06	5.14	OOT	3.73	3.83	OOT
sc-nasasrb	1.86	2.22	OOT	17.38	148.89	OOT
sc-pkustk11	5.53	397.89	431.69	1.33	136.90	OOT

sc-pkustk13	1.78	1.85	185.85	2.96	2.98	OOT
sc-pwtk	10.51	10.85	OOT	18.61	116.60	OOT
sc-shipsec1	0.21	0.22	17.38	0.61	1.30	OOT
sc-shipsec5	0.56	0.59	104.41	0.49	0.70	1,373.96
soc-BlogCatalog	OOT	OOT	OOT	OOT	OOT	OOT
soc-brightkite	0.02	0.02	0.05	0.01	0.02	0.02
soc-buzznet	OOT	OOT	0.00	OOT	OOT	OOT
soc-delicious	0.11	0.10	0.36	0.11	0.09	0.70
soc-digg	979.23	928.29	OOT	16.96	14.85	OOT
soc-dolphins	0.00	0.00	OOT	0.00	0.00	0.00
soc-douban	0.07	0.12	923.69	0.37	4.48	OOT
soc-epinions	0.02	0.02	0.03	0.21	0.50	5.08
socfb-A-anon	29.67	24.49	OOT	26.55	21.67	OOT
socfb-B-anon	33.34	28.19	OOT	27.02	24.92	OOT
socfb-Berkeley13	1.13	0.97	30.37	0.97	0.90	0.73
socfb-CMU	0.34	0.34	172.35	0.34	0.33	OOT
socfb-Duke14	4.61	298.91	OOT	32.92	OOT	OOT
socfb-Indiana	1.68	1.56	723.78	1.38	1.42	OOT
socfb-MIT	0.39	0.38	2.00	0.39	0.39	OOT
socfb-OR	0.31	0.29	0.45	0.26	0.26	2.81
socfb-Penn94	1.63	1.45	258.81	1.57	1.43	540.98
socfb-Stanford3	1.25	1.16	OOT	1.17	1.12	OOT
socfb-Texas84	1.25	1.24	0.58	1.09	1.06	10.79
socfb-uci-uni	23.82	20.17	19.99	28.95	25.37	OOT
socfb-UCLA	0.80	0.77	0.36	0.83	0.79	6.56
socfb-UConn	0.10	0.09	0.09	0.09	0.08	0.83
socfb-UCSB37	0.02	0.01	0.02	0.08	0.08	0.06
socfb-UF	0.84	0.82	OOT	0.76	0.77	20.93
socfb-Ullinois	2.22	2.15	OOT	2.00	1.88	OOT
socfb-Wisconsin87	0.78	0.80	7.63	0.25	0.24	0.33
soc-flickr	OOT	OOT	OOT	OOT	OOT	OOT
soc-flixster	1.44	20.99	OOT	0.51	1.11	259.17
soc-FourSquare	13.63	4.33	OOT	7.85	7.70	OOT
soc-gowalla	0.23	0.26	OOT	0.37	0.39	OOT
soc-karate	0.00	0.00	0.00	0.00	0.00	0.00
soc-lastfm	2.23	5.38	OOT	11.83	84.67	OOT
soc-livejournal	2.87	3.52	4.61	3.46	3.46	3.77
soc-LiveMocha	43.53	628.76	OOT	15.83	3.76	OOT
soc-orkut	398.46	OOT	OOT	221.33	213.18	OOT
soc-pokec	25.07	20.40	1,451.55	20.07	16.01	OOT
soc-slashdot	0.06	0.13	OOT	1.02	9.47	OOT
soc-twitter-follows	0.11	0.11	OOT	0.16	5.60	OOT
soc-wiki-Vote	0.00	0.00	0.00	0.00	0.00	OOT
soc-youtube	0.61	0.64	OOT	4.93	16.30	OOT
soc-youtube-snap	1.04	1.09	OOT	6.39	33.11	OOT
tech-as-caida2007	0.01	0.01	0.02	0.08	0.08	0.78

tech-as-skitter	1.04	4.35	OOT	0.91	1.38	OOT
tech-internet-as	0.02	0.02	0.10	0.04	0.05	0.02
tech-p2p-gnutella	0.02	0.18	OOT	0.02	0.18	OOT
tech-RL-caida	0.09	0.09	1.44	0.08	0.08	0.16
tech-routers-rf	0.00	0.00	0.00	0.00	0.00	0.00
tech-WHOIS	0.07	0.17	552.64	0.04	0.40	29.50
web-arabic-2005	0.01	0.03	0.04	0.01	0.03	0.05
web-BerkStan	0.00	0.00	0.00	0.00	0.00	0.01
web-edu	0.00	0.00	0.00	0.00	0.00	0.00
web-google	0.00	0.00	0.00	0.00	0.00	OOT
web-indochina-2004	0.00	0.00	0.00	0.00	0.01	0.01
web-it-2004	0.78	0.88	1.50	0.80	0.89	1.46
web-polblogs	0.00	0.00	0.00	0.00	0.00	0.00
web-sk-2005	0.02	0.02	0.04	0.02	0.02	0.03
web-spam	0.02	0.02	0.16	0.02	0.03	0.02
web-uk-2005	1.20	1.38	2.21	1.23	1.41	2.21
web-webbase-2001	0.00	0.00	0.01	0.00	0.00	0.01
web-wikipedia2009	1.33	0.92	OOT	OOT	OOT	OOT

Table 3: Running time of kPlexS, KpLeX and our algorithm for k=20

Graph	k=20		
	Ours	kPlexS	KpLeX
bio-celegans	0.00	0.00	0.00
bio-diseasome	0.00	0.13	0.01
bio-dmela	0.00	0.00	0.00
bio-yeast	0.00	0.00	0.02
ca-AstroPh	0.04	0.04	0.12
ca-citeseer	0.06	0.06	0.07
ca-coauthors-dblp	0.39	0.39	0.83
ca-CondMat	0.03	0.03	1.22
ca-CSphd	0.00	0.00	0.00
ca-dblp-2010	0.02	0.02	0.06
ca-dblp-2012	0.03	0.03	0.11
ca-Erdos992	0.00	0.00	0.01
ca-GrQc	0.00	0.00	0.01
ca-HepPh	0.01	0.01	0.01
ca-hollywood-2009	1.22	1.03	1.58
ca-MathSciNet	0.17	0.21	33.18
ca-netscience	0.00	0.00	0.00
ia-email-EU	17.11	2.26	OOT

ia-email-univ	0.00	0.01	0.01
ia-enron-large	4.95	8.21	OOT
ia-enron-only	0.00	0.01	0.00
ia-fb-messages	0.00	OOT	0.02
ia-infect-dublin	0.00	0.03	0.00
ia-infect-hyper	0.20	0.29	7.73
ia-reality	0.00	0.00	0.00
ia-wiki-Talk	OOT	OOT	OOT
inf-power	0.00	0.00	0.01
inf-roadNet-CA	0.28	0.26	OOT
inf-roadNet-PA	0.15	0.15	0.32
inf-road-usa	8.49	13.12	OOT
rec-amazon	0.03	0.05	66.03
rt-retweet	0.00	0.00	0.00
rt-retweet-crawl	0.40	4.53	2.11
rt-twitter-copen	0.00	0.00	0.00
scc_enron-only	0.01	0.02	0.02
scc_fb-forum	0.02	0.02	0.00
scc_fb-messages	0.10	0.10	0.00
scc_infect-dublin	0.01	0.01	0.01
scc_infect-hyper	0.00	0.00	0.00
scc_reality	48.15	49.87	OOT
scc_retweet	0.04	0.04	0.03
scc_retweet-crawl	0.00	0.01	0.01
scc_rt_alwefaq	0.00	0.00	0.00
scc_rt_assad	0.00	0.00	0.00
scc_rt_bahrain	0.00	0.00	0.00
scc_rt_barackobama	0.00	0.00	0.00
scc_rt_damascus	0.00	0.00	0.00
scc_rt_dash	0.00	0.00	0.00
scc_rt_gmanews	0.00	0.00	0.00
scc_rt_gop	0.00	0.00	0.00
scc_rt_http	0.00	0.00	0.00
scc_rt_israel	0.00	0.00	0.00
scc_rt_justinbieber	0.00	0.00	0.00
scc_rt_ksa	0.00	0.00	0.00
scc_rt_lebanon	0.00	0.00	0.00
scc_rt_libya	0.00	0.00	0.00
scc_rt_lolgop	0.00	0.00	0.00
scc_rt_mittromney	0.00	0.00	0.00
scc_rt_obama	0.00	0.00	0.00
scc_rt_occupy	0.00	0.00	0.00
scc_rt_occupywallstnyc	0.00	0.00	0.00
scc_rt_oman	0.00	0.00	0.00
scc_rt_onedirection	0.00	0.00	0.00
scc_rt_p2	0.00	0.00	0.00

scc_rt_qatif	0.00	0.00	0.00
scc_rt_saudi	0.00	0.00	0.00
scc_rt_tcot	0.00	0.00	0.00
scc_rt_tlot	0.00	0.00	0.00
scc_rt_uae	0.00	0.00	0.00
scc_rt_voteonedirection	0.00	0.00	0.00
scc_twitter-copen	0.10	0.09	0.01
sc-ldoor	13.89	14.11	OOT
sc-msdoor	400.67	887.96	OOT
sc-nasasrb	12.57	459.33	OOT
sc-pkustk11	23.67	407.64	OOT
sc-pkustk13	4.67	4.78	OOT
sc-pwtk	6.61	122.78	OOT
sc-shipsec1	0.52	1.28	OOT
sc-shipsec5	0.32	0.36	OOT
soc-BlogCatalog	OOT	OOT	OOT
soc-brightkite	0.01	0.01	0.09
soc-buzznet	OOT	OOT	OOT
soc-delicious	1.37	0.89	1,033.48
soc-digg	17.08	15.81	OOT
soc-dolphins	0.00	0.00	0.00
soc-douban	0.03	7.93	3.08
soc-epinions	10.34	57.31	OOT
socfb-A-anon	24.24	25.05	OOT
socfb-B-anon	27.53	27.28	OOT
socfb-Berkeley13	0.91	0.91	5.92
socfb-CMU	0.40	0.85	OOT
socfb-Duke14	43.21	OOT	OOT
socfb-Indiana	5.44	14.32	446.69
socfb-MIT	0.56	1.40	OOT
socfb-OR	0.26	0.26	1,202.98
socfb-Penn94	1.70	1.73	OOT
socfb-Stanford3	1.29	1.36	OOT
socfb-Texas84	0.77	0.77	2.99
socfb-uci-uni	24.75	24.62	24.59
socfb-UCLA	0.93	0.94	11.02
socfb-UConn	0.09	0.09	5.48
socfb-UCSB37	0.08	0.08	0.06
socfb-UF	0.65	0.72	0.40
socfb-Ullinois	2.03	1.88	OOT
socfb-Wisconsin87	0.23	0.22	0.15
soc-flickr	OOT	OOT	OOT
soc-flixster	0.54	0.54	1.41
soc-FourSquare	6.89	8.98	OOT
soc-gowalla	7.84	64.12	OOT
soc-karate	0.00	0.00	0.00

soc-lastfm	1,397.07	OOT	OOT
soc-livejournal	3.67	3.60	5.21
soc-LiveMocha	576.94	OOT	OOT
soc-orkut	204.89	181.54	OOT
soc-pokec	17.76	14.99	OOT
soc-slashdot	0.27	0.11	110.08
soc-twitter-follows	20.18	24.93	OOT
soc-wiki-Vote	0.00	0.00	0.00
soc-youtube	OOT	OOT	OOT
soc-youtube-snap	OOT	OOT	OOT
tech-as-caida2007	0.03	0.02	0.03
tech-as-skitter	1.14	1.82	OOT
tech-internet-as	0.02	0.03	0.02
tech-p2p-gnutella	0.02	0.38	10.44
tech-RL-caida	0.07	0.07	0.77
tech-routers-rf	0.00	0.00	0.01
tech-WHOIS	0.08	0.11	3.08
web-arabic-2005	0.02	0.02	0.07
web-BerkStan	0.00	0.00	0.01
web-edu	0.00	0.00	0.01
web-google	0.00	0.00	0.00
web-indochina-2004	0.01	0.01	0.01
web-it-2004	0.89	0.88	1.53
web-polblogs	0.00	0.00	0.00
web-sk-2005	0.02	0.02	0.06
web-spam	0.01	0.01	0.19
web-uk-2005	1.35	1.32	2.24
web-webbase-2001	0.00	0.00	0.01
web-wikipedia2009	OOT	OOT	OOT

1.2 Non-trivial Results fro Network-Repo

Table 4: Running time of kPlexS, KpLeX and our algorithm for k=2 and 5 after removing extremely easy and hard graphs

Graph	k=2			k=5		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
socfb-Duke14	4.72	54.69	248.48	7.63	702.81	OOT
soc-lastfm	17.93	39.58	8.81	55.57	143.43	OOT
soc-digg	1,201.13	OOT	OOT	OOT	OOT	OOT
sc-msdoor	11.79	13.32	OOT	1,259.54	456.11	OOT

soc-LiveMocha	19.06	64.11	18.89	99.50	OOT	OOT
ia-fb-messages	0.00	0.00	0.01	0.01	0.01	0.04
sc-nasasrb	0.55	0.57	9.76	2.13	3.27	149.48
sc-pkustk11	1.23	1.36	0.70	95.99	10.79	2.70
soc-orkut	394.51	OOT	OOT	OOT	OOT	OOT
ia-wiki-Talk	3.27	3.84	1.51	2.31	4.84	257.87
sc-pwtk	2.17	2.31	OOT	3.51	4.38	OOT
soc-gowalla	0.33	0.32	2.10	0.26	0.26	OOT
scc_reality	0.76	0.08	0.07	14.05	18.64	102.76
soc-epinions	0.04	0.04	0.07	0.03	0.03	OOT
socfb-B-anon	41.21	38.22	146.31	45.97	42.63	OOT
soc-flixster	1.97	39.09	36.31	1.95	190.51	OOT
socfb-A-anon	38.87	32.32	30.10	33.23	33.63	602.96
soc-pokec	34.83	30.24	16.74	25.82	25.59	OOT
soc-youtube-snap	0.99	1.08	1.96	0.92	0.96	147.49
socfb-uci-uni	13.93	21.14	20.09	27.94	26.90	25.43
soc-twitter-follows	0.14	0.13	1.11	0.13	0.12	OOT
sc-ldoor	20.25	22.80	OOT	OOT	820.11	OOT
soc-FourSquare	19.76	16.97	969.42	3.03	3.88	OOT
ia-email-EU	0.02	0.02	0.03	0.01	0.01	0.05
soc-youtube	0.76	0.75	1.39	0.74	0.79	57.92
socfb-Indiana	2.52	2.23	284.86	2.39	2.18	OOT
inf-road-usa	3.36	11.54	8.89	4.04	4.25	OOT

Table 5: Number of solved instances of different time limits for k=2 and 5

Time	k=2			k=5		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
1	9	8	5	7	7	2
3	13	12	10	11	8	3
10	16	13	13	15	13	3
30	22	18	16	18	17	4
100	25	25	18	23	19	5
300	25	25	21	23	21	9
1000	26	25	22	23	24	10
1800	27	25	22	24	24	10

Table 6: Running time of kPlexS, KpLeX and our algorithm for k=10 and 15 after removing extremely easy and hard graphs

Graph	k=10			k=15		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
socfb-Duke14	4.61	298.91	OOT	32.92	OOT	OOT
soc-lastfm	2.23	5.38	OOT	11.83	84.67	OOT
soc-digg	979.23	928.29	OOT	16.96	14.85	OOT
sc-msdoor	5.06	5.14	OOT	3.73	3.83	OOT
soc-LiveMocha	43.53	628.76	OOT	15.83	3.76	OOT
ia-fb-messages	0.18	10.97	OOT	0.00	487.84	OOT
sc-nasasrb	1.86	2.22	OOT	17.38	148.89	OOT
sc-pkustk11	5.53	397.89	431.69	1.33	136.90	OOT
soc-orkut	398.46	OOT	OOT	221.33	213.18	OOT
ia-wiki-Talk	4.38	6.86	OOT	14.46	126.63	OOT
sc-pwtk	10.51	10.85	OOT	16.84	116.60	OOT
soc-gowalla	0.23	0.26	OOT	0.37	0.39	OOT
scc_reality	12.37	5.83	5.16	27.16	58.27	OOT
soc-epinions	0.02	0.02	0.03	0.21	0.50	5.08
socfb-B-anon	33.34	28.19	OOT	27.02	24.92	OOT
soc-flixster	1.44	20.99	OOT	0.51	1.11	259.17
socfb-A-anon	29.67	24.49	OOT	26.55	21.67	OOT
soc-pokec	25.07	20.40	1,451.55	20.07	16.01	OOT
soc-youtube-snap	1.04	1.09	OOT	6.39	33.11	OOT
socfb-uci-uni	23.82	20.17	19.99	28.95	25.37	OOT
soc-twitter-follows	0.11	0.11	OOT	0.16	5.60	OOT
sc-lldoor	10.55	11.26	OOT	7.94	7.91	OOT
soc-FourSquare	13.63	4.33	OOT	7.85	7.70	OOT
ia-email-EU	0.03	0.04	0.31	0.17	0.18	33.93
soc-youtube	0.61	0.64	OOT	4.93	16.30	OOT
socfb-Indiana	1.68	1.56	723.78	1.38	1.42	OOT
inf-road-usa	8.90	12.35	OOT	3.76	3.48	OOT

Table 7: Number of solved instances of different time limits for k=10 and 15

Time	k=10			k=15		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
1	6	5	2	6	3	0
3	11	8	2	8	5	0
10	16	13	3	14	11	1

30	23	22	4	25	17	1
100	25	22	4	26	20	2
300	25	23	4	27	25	3
1000	27	26	6	27	26	3
1800	27	26	7	27	26	3

Table 8: Running time of kPlexS, KpLeX and our algorithm for k=20 after removing extremely easy and hard graphs

Graph	k=20		
	Ours	kPlexS	KpLeX
socfb-Duke14	43.21	OOT	OOT
soc-lastfm	1,397.07	OOT	OOT
soc-digg	17.08	15.81	OOT
sc-msdoor	400.67	887.96	OOT
soc-LiveMocha	576.94	OOT	OOT
ia-fb-messages	0.00	OOT	0.02
sc-nasasrb	12.57	459.33	OOT
sc-pkustk11	23.67	407.64	OOT
soc-orkut	204.89	181.54	OOT
ia-wiki-Talk	OOT	OOT	OOT
sc-pwtk	6.61	122.78	OOT
soc-gowalla	7.84	64.12	OOT
scc_reality	48.15	49.87	OOT
soc-epinions	10.34	57.31	OOT
socfb-B-anon	27.53	27.28	OOT
soc-flixster	0.54	0.54	1.41
socfb-A-anon	24.24	25.05	OOT
soc-pokec	17.76	14.99	OOT
soc-youtube-snap	OOT	OOT	OOT
socfb-uci-uni	24.75	24.62	24.59
soc-twitter-follows	20.18	24.93	OOT
sc-ldoor	13.89	14.11	OOT
soc-FourSquare	6.89	8.98	OOT
ia-email-EU	17.11	2.26	OOT
soc-youtube	OOT	OOT	OOT
socfb-Indiana	5.44	14.32	446.69
inf-road-usa	8.49	13.12	OOT

Table 9: Number of solved instances for k=20

Time	k=20		
	Ours	kPlexS	KpLeX
1	2	1	1
3	2	2	2
10	7	3	2
30	18	12	3
100	20	15	3
300	21	17	3
1000	23	20	4
1800	24	20	4

1.3 Complete Results for 10th-DIMACS

Table 10: Running time of kPlexS, KpLeX and our algorithm for k=2 and 5

graph	k=2			k=5		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
144	0.71	0.71	632.61	0.81	0.77	626.04
598a	0.52	0.52	356.17	0.91	1.05	354.32
adaptive	0.79	0.74	OOT	3.38	11.12	1.64
auto	3.14	2.90	OOT	4.01	3.72	OOT
bio-celegansneural	0.00	0.00	OOT	0.00	0.00	0.01
bio-pdb1HYS	1.85	2.06	9.82	2.05	1.87	259.01
c-62ghs	0.07	0.07	0.10	0.07	0.07	0.11
c-66b	0.04	0.04	0.08	0.04	0.04	0.08
channel-500x100x100-b050	12.71	12.56	198.51	36.56	35.40	OOT
chesapeake	0.00	0.00	OOT	0.00	0.00	0.00
citationCiteseer	0.27	0.28	0.22	0.17	0.17	0.20
cnr-2000	0.07	0.07	0.09	0.08	0.08	0.10
coAuthorsCiteseer	0.02	0.04	0.06	0.03	0.03	0.07
connectus	0.28	0.24	1.95	0.25	0.25	0.76
consph	1.71	1.75	403.20	25.14	56.14	560.42
cop20k_A	0.78	0.77	359.39	0.92	0.87	232.46
co-papers-citeseer	0.09	0.36	0.35	0.12	0.11	0.33
co-papers-dblp	0.11	0.41	0.38	0.12	0.12	0.37
cs4	0.02	0.02	6.80	0.01	0.03	7.05
cti	0.01	0.01	0.01	0.01	0.01	0.68
delaunay_n10	0.00	0.00	0.03	0.00	0.00	0.03

delaunay_n11	0.00	0.00	0.10	0.01	0.01	0.11
delaunay_n12	0.01	0.01	0.38	0.01	0.01	0.40
delaunay_n13	0.01	0.01	1.47	0.02	0.02	1.49
delaunay_n14	0.02	0.02	5.85	0.03	0.03	6.14
delaunay_n15	0.04	0.04	23.36	0.04	0.04	23.44
delaunay_n16	0.07	0.07	93.83	0.10	0.11	93.86
delaunay_n17	0.14	0.14	373.77	0.20	0.22	386.64
delaunay_n18	0.30	0.30	1,497.72	0.40	0.45	1,516.43
delaunay_n19	0.61	0.60	OOT	0.56	0.57	OOT
delaunay_n20	1.27	1.26	OOT	1.58	1.79	OOT
delaunay_n21	2.85	2.58	OOT	1.94	2.04	OOT
delaunay_n22	5.47	5.19	OOT	3.46	3.51	OOT
delaunay_n23	13.09	11.75	OOT	7.56	7.69	OOT
delaunay_n24	28.71	23.81	OOT	13.61	13.20	OOT
email-enron	0.10	0.11	0.44	0.11	0.10	0.14
fe_rotor	0.34	0.32	285.20	0.53	0.51	283.24
fe-4elt2	0.01	0.01	2.23	0.01	0.01	2.36
fe-body	0.01	0.01	OOT	0.05	0.04	42.04
fe-ocean	0.06	0.06	0.11	0.08	0.28	0.98
fe-sphere	0.01	0.01	4.00	0.01	0.01	4.26
fe-tooth	0.21	0.21	165.56	0.45	0.50	167.81
hugebubbles-00020	5.45	5.06	OOT	23.63	33.85	OOT
hugetrace-00000	3.76	3.34	OOT	2.79	4.28	OOT
hugetrace-00010	3.25	3.02	OOT	9.48	14.41	OOT
hugetrace-00020	3.56	3.32	OOT	13.34	22.36	OOT
hugetric-00000	1.00	0.93	OOT	3.45	6.40	OOT
hugetric-00010	1.66	1.44	OOT	5.96	9.52	OOT
hugetric-00020	9.16	8.61	OOT	6.54	10.19	OOT
inf-asia_osm	1.38	1.10	2.32	1.41	1.35	OOT
inf-belgium_osm	0.14	0.13	0.16	0.50	0.50	OOT
inf-europe_osm	6.62	5.80	10.19	20.33	28.71	12.79
inf-germany_osm	1.69	1.55	2.33	5.11	6.77	OOT
inf-great-britain_osm	0.82	0.76	OOT	2.86	3.71	1.90
inf-italy_osm	0.64	0.54	0.90	1.98	2.62	OOT
inf-luxembourg_osm	0.02	0.02	OOT	0.02	0.03	115.00
inf-netherlands_osm	0.21	0.22	0.34	0.70	0.94	OOT
inf-road_central	2.51	2.99	6.54	8.88	10.37	OOT
inf-road_usa	3.36	11.27	8.00	4.08	4.42	OOT
kron_g500-logn16	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn17	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn18	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn19	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn20	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn21	OOT	OOT	OOT	OOT	OOT	OOT
m14b	1.11	1.20	1,418.07	1.29	1.14	1,382.37
packing-500x100x100-b050	7.09	7.10	OOT	19.22	21.12	OOT

polblogs	0.03	0.09	0.14	0.02	0.02	0.12
rgg_n_2_15_s0	0.00	0.01	0.01	0.01	0.01	0.11
rgg_n_2_16_s0	0.01	0.02	0.02	0.01	0.01	0.02
rgg_n_2_17_s0	0.02	0.04	0.03	0.03	0.03	0.06
rgg_n_2_18_s0	0.03	0.10	0.09	0.05	0.05	0.12
rgg_n_2_19_s0	0.06	0.21	0.24	0.09	0.10	0.29
rgg_n_2_20_s0	0.16	0.51	0.50	0.27	0.26	0.72
rgg_n_2_21_s0	0.25	1.24	1.52	0.40	0.42	1.77
rgg_n_2_22_s0	0.61	2.60	3.98	0.93	0.90	4.15
rgg_n_2_23_s0	1.43	5.12	8.32	2.11	2.52	9.19
rgg_n_2_24_s0	3.31	10.89	18.30	4.13	4.14	20.73
soc-Epinions1	0.79	2.40	1.88	0.31	0.30	2.89
t60k	0.03	0.02	45.16	0.01	0.03	46.21
tech-caidaRouterLevel	0.06	0.22	3.76	0.08	0.08	1.09
venturiLevel3	1.89	1.90	OOT	1.67	2.04	OOT
wing	0.04	0.04	0.03	0.03	0.07	52.59
wing_nodal	0.04	0.03	3.55	0.10	0.13	3.80

Table 11: Running time of kPlexS, KpLeX and our algorithm for k=10 and 15

gragh	k=10			k=15		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
144	0.48	2.16	OOT	0.26	2.17	OOT
598a	0.20	1.81	OOT	0.18	1.77	OOT
adaptive	0.81	0.75	OOT	2.50	5.31	1.09
auto	2.48	5.25	OOT	1.25	7.10	OOT
bio-celegansneural	0.00	0.00	0.03	0.00	0.06	OOT
bio-pdb1HYS	1.79	1.87	447.45	1.77	1.85	OOT
c-62ghs	0.05	0.05	0.06	0.04	0.04	0.05
c-66b	0.03	0.03	0.05	0.02	0.02	0.04
channel-500x100x100-b050	51.01	156.27	OOT	4.58	113.50	OOT
chesapeake	0.00	0.00	0.00	0.00	0.00	0.02
citationCiteseer	0.24	0.20	19.87	0.14	0.34	210.25
cnr-2000	0.08	0.07	0.08	0.09	0.07	0.09
coAuthorsCiteseer	0.05	0.04	0.05	0.05	0.05	0.05
connectus	0.94	0.82	OOT	55.97	77.09	OOT
consph	9.83	19.27	OOT	16.77	437.79	OOT
cop20k_A	0.92	0.85	358.69	2.60	4.72	OOT
co-papers-citeseer	0.11	0.32	0.30	0.11	0.31	0.31
co-papers-dblp	0.28	0.57	0.56	0.36	0.65	0.72
cs4	0.01	0.02	OOT	0.01	0.02	OOT

cti	0.01	0.03	OOT	0.01	0.03	OOT
delaunay_n10	0.00	0.00	OOT	0.00	0.00	OOT
delaunay_n11	0.00	0.01	OOT	0.00	0.00	OOT
delaunay_n12	0.00	0.01	OOT	0.00	0.01	OOT
delaunay_n13	0.01	0.02	OOT	0.01	0.01	OOT
delaunay_n14	0.01	0.03	OOT	0.01	0.02	OOT
delaunay_n15	0.02	0.05	OOT	0.02	0.04	OOT
delaunay_n16	0.04	0.09	OOT	0.04	0.07	OOT
delaunay_n17	0.08	0.18	OOT	0.07	0.15	OOT
delaunay_n18	0.17	0.33	OOT	0.15	0.30	0.04
delaunay_n19	0.33	0.50	OOT	0.32	0.62	OOT
delaunay_n20	0.65	1.25	OOT	0.65	1.25	OOT
delaunay_n21	1.36	1.77	OOT	1.40	2.53	OOT
delaunay_n22	2.72	6.14	OOT	2.96	5.07	1.04
delaunay_n23	6.60	7.99	OOT	6.34	10.52	OOT
delaunay_n24	11.38	12.64	OOT	12.37	20.91	OOT
email-enron	0.09	0.09	0.21	0.11	0.09	0.17
fe_rotor	0.12	1.14	OOT	0.12	1.22	OOT
fe-4elt2	0.01	0.01	OOT	0.01	0.01	OOT
fe-body	0.03	0.04	OOT	0.03	0.05	OOT
fe-ocean	0.05	0.21	OOT	0.04	0.14	OOT
fe-sphere	0.01	0.01	OOT	0.01	0.02	OOT
fe-tooth	0.08	0.62	OOT	0.07	0.31	OOT
hugebubbles-00020	5.63	5.20	OOT	19.75	31.32	OOT
hugetrace-00000	2.36	3.92	OOT	2.35	3.64	OOT
hugetrace-00010	2.58	2.38	OOT	8.61	12.48	3.92
hugetrace-00020	12.05	18.69	OOT	12.28	18.20	5.42
hugetric-00000	1.13	0.94	OOT	3.05	5.86	OOT
hugetric-00010	1.50	1.32	2.07	5.92	7.92	2.01
hugetric-00020	5.95	8.60	OOT	1.45	1.41	OOT
inf-asia_osm	1.27	1.11	2.28	1.21	1.12	2.10
inf-belgium_osm	0.40	0.51	OOT	0.37	0.52	0.20
inf-europe_osm	20.13	25.65	9.17	6.54	5.91	OOT
inf-germany_osm	1.76	1.49	OOT	1.87	1.46	OOT
inf-great-britain_osm	2.35	3.91	143.46	2.28	4.21	OOT
inf-italy_osm	1.68	2.75	OOT	1.56	2.01	OOT
inf-luxembourg_osm	0.02	0.03	OOT	0.02	0.03	131.11
inf-netherlands_osm	0.21	0.20	0.45	0.58	0.75	OOT
inf-road.central	4.19	2.93	OOT	4.33	3.03	OOT
inf-road.usa	8.63	12.37	OOT	4.06	3.48	OOT
kron_g500-logn16	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn17	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn18	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn19	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn20	OOT	OOT	OOT	OOT	OOT	OOT
kron_g500-logn21	OOT	OOT	OOT	OOT	OOT	OOT

m14b	1.47	2.37	1,445.14	0.42	4.57	OOT
packing-500x100x100-b050	15.28	71.86	OOT	2.77	55.11	OOT
polblogs	0.02	0.03	0.27	0.02	0.01	0.02
rgg_n_2_15_s0	0.01	0.01	27.52	0.03	0.04	0.01
rgg_n_2_16_s0	0.05	0.04	8.77	0.06	0.11	116.57
rgg_n_2_17_s0	0.07	0.06	10.07	0.24	0.24	473.21
rgg_n_2_18_s0	0.09	0.09	0.09	0.09	0.09	553.59
rgg_n_2_19_s0	0.26	0.31	1.40	1.33	1.28	OOT
rgg_n_2_20_s0	0.48	0.52	1.73	0.50	0.47	0.50
rgg_n_2_21_s0	2.13	2.55	OOT	6.23	6.35	OOT
rgg_n_2_22_s0	3.23	3.95	OOT	14.82	13.99	OOT
rgg_n_2_23_s0	4.39	5.69	10.07	30.01	30.35	OOT
rgg_n_2_24_s0	7.79	13.78	27.52	27.80	28.13	OOT
soc-Epinions1	0.31	0.60	20.13	0.25	0.26	4.87
t60k	0.01	0.02	52.57	0.02	0.03	52.61
tech-caidaRouterLevel	0.09	0.10	2.02	0.08	0.08	0.16
venturiLevel3	1.18	1.60	OOT	0.41	0.39	OOT
wing	0.03	0.06	OOT	0.03	0.05	OOT
wing_nodal	0.02	0.21	OOT	0.02	0.20	OOT

Table 12: Running time of kPlexS, KpLeX and our algorithm for k=20

graph	k=20		
	Ours	kPlexS	KpLeX
144	0.32	2.53	632.33
598a	0.22	2.09	354.87
adaptive	0.97	1.02	1.51
auto	1.45	8.35	555.30
bio-celegansneural	0.00	0.03	0.00
bio-pdb1HYS	1.71	1.70	OOT
c-62ghs	0.03	0.03	0.04
c-66b	0.02	0.02	0.04
channel-500x100x100-b050	4.86	138.03	OOT
chesapeake	0.00	0.00	0.00
citationCiteseer	0.12	0.47	2.00
cnr-2000	0.12	0.12	0.14
coAuthorsCiteseer	0.06	0.06	0.07
connectus	OOT	OOT	OOT
consph	268.64	OOT	OOT
cop20k_A	0.29	23.36	364.85
co-papers-citeseer	0.12	0.11	0.36

co-papers-dblp	0.39	0.38	0.80
cs4	0.01	0.03	6.91
cti	0.01	0.03	4.52
delaunay_n10	0.00	0.00	0.02
delaunay_n11	0.00	0.00	0.09
delaunay_n12	0.00	0.01	0.36
delaunay_n13	0.01	0.02	1.48
delaunay_n14	0.01	0.04	5.69
delaunay_n15	0.02	0.04	23.31
delaunay_n16	0.04	0.08	90.74
delaunay_n17	0.08	0.15	363.76
delaunay_n18	0.17	0.32	1,507.12
delaunay_n19	0.35	0.63	OOT
delaunay_n20	0.72	1.35	OOT
delaunay_n21	1.41	3.22	OOT
delaunay_n22	2.83	5.61	OOT
delaunay_n23	6.53	11.21	OOT
delaunay_n24	11.86	21.62	OOT
email-enron	0.09	0.07	2.46
fe_rotor	0.14	1.40	286.05
fe-4elt2	0.01	0.01	2.24
fe-body	0.03	0.05	16.09
fe-ocean	0.05	0.14	322.83
fe-sphere	0.01	0.01	4.10
fe-tooth	0.08	0.34	135.09
hugebubbles-00020	22.21	33.75	OOT
hugetrace-00000	0.81	0.95	1.60
hugetrace-00010	9.08	14.12	OOT
hugetrace-00020	4.39	3.88	8.41
hugetric-00000	3.26	5.72	OOT
hugetric-00010	6.29	9.27	OOT
hugetric-00020	6.67	9.32	OOT
inf-asia_osm	1.35	1.51	OOT
inf-belgium_osm	0.44	0.66	0.29
inf-europe_osm	7.27	6.97	13.25
inf-germany_osm	1.83	2.30	OOT
inf-great-britain_osm	0.97	1.07	1.76
inf-italy_osm	2.01	2.46	OOT
inf-luxembourg_osm	0.02	0.03	0.03
inf-netherlands_osm	0.62	0.91	0.48
inf-road_central	9.09	11.24	OOT
inf-road_usa	9.26	13.19	OOT
kron_g500-logn16	OOT	OOT	OOT
kron_g500-logn17	OOT	OOT	OOT
kron_g500-logn18	OOT	OOT	OOT
kron_g500-logn19	OOT	OOT	OOT

kron_g500-logn20	OOT	OOT	OOT
kron_g500-logn21	OOT	OOT	OOT
m14b	0.56	4.30	1,411.08
packing-500x100x100-b050	2.68	63.55	OOT
polblogs	0.00	0.00	0.00
rgg_n_2_15_s0	0.03	0.05	0.02
rgg_n_2_16_s0	0.02	0.02	0.03
rgg_n_2_17_s0	0.04	0.04	0.06
rgg_n_2_18_s0	0.30	0.53	OOT
rgg_n_2_19_s0	0.25	0.24	OOT
rgg_n_2_20_s0	0.54	0.52	0.79
rgg_n_2_21_s0	1.18	1.39	1.71
rgg_n_2_22_s0	8.08	14.64	OOT
rgg_n_2_23_s0	31.59	31.87	OOT
rgg_n_2_24_s0	69.45	67.92	OOT
soc-Epinions1	0.45	2.97	OOT
t60k	0.01	0.01	46.33
tech-caidaRouterLevel	0.08	0.07	0.22
venturiLevel3	1.59	3.05	OOT
wing	0.03	0.05	52.04
wing_nodal	0.02	0.23	3.48

1.4 Non-trivial Results for 10th-DIMACS

Table 13: Running time of kPlexS, KpLeX and our algorithm for k=2 and 5 after removing extremely easy and hard graphs

gragh	k=2			k=5		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
connectus	0.28	0.24	1.95	0.25	0.25	0.76
consph	1.71	1.75	403.20	25.19	56.14	560.42
channel-500x100x100-b050	12.71	12.56	198.51	36.56	35.40	OOT
packing-500x100x100-b050	7.09	7.10	OOT	19.22	21.12	OOT
rgg_n_2_24_s0	3.31	10.89	18.30	4.13	4.14	20.73
hugebubbles-00020	5.45	5.06	OOT	23.63	33.85	OOT
rgg_n_2_23_s0	1.43	5.12	8.32	2.11	2.52	9.19
delaunay_n24	28.71	23.81	OOT	13.61	13.20	OOT
inf-europe_osm	6.62	5.80	10.19	20.33	28.71	12.79
cop20k_A	0.78	0.77	359.39	0.92	0.87	232.46
hugetrace-00020	3.56	3.32	OOT	13.34	22.36	OOT
rgg_n_2_22_s0	0.61	2.60	3.98	0.93	0.90	4.15

hugetrace-00010	3.25	3.02	OOT	9.48	14.41	OOT
inf-road_usa	3.36	11.27	8.00	4.08	4.42	OOT
delaunay_n23	13.09	11.75	OOT	7.56	7.69	OOT
inf-road_central	2.51	2.99	6.54	8.88	10.37	OOT

Table 14: Number of solved instances for k=2 and 5

Time	k=2			k=5		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
1	3	2	0	3	3	1
3	6	5	1	4	4	1
10	13	11	5	9	7	3
30	16	16	7	15	13	5
100	16	16	7	16	16	5
300	16	16	8	16	16	6
1000	16	16	10	16	16	7
1800	16	16	10	16	16	7

Table 15: Running time of kPlexS, KpLeX and our algorithm for k=10 and 15 after removing extremely easy and hard graphs

gragh	k=10			k=15		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
connectus	0.94	0.82	OOT	55.97	77.09	OOT
consph	12.83	19.27	OOT	16.77	437.79	OOT
channel-500x100x100-b050	51.01	156.27	OOT	4.58	113.50	OOT
packing-500x100x100-b050	15.28	71.86	OOT	2.77	55.11	OOT
rgg_n_2_24_s0	7.79	13.78	27.52	27.80	28.13	OOT
hugebubbles-00020	5.63	5.20	OOT	19.75	31.32	OOT
rgg_n_2_23_s0	4.39	5.69	10.07	30.01	30.35	OOT
delaunay_n24	11.38	12.64	OOT	12.37	20.91	OOT
inf-europe_osm	20.13	25.65	9.17	6.54	5.91	OOT
cop20k_A	0.92	0.85	358.69	2.60	4.72	OOT
hugetrace-00020	12.05	18.69	OOT	12.28	18.20	5.42
rgg_n_2_22_s0	3.23	3.95	OOT	14.82	13.99	OOT
hugetrace-00010	2.58	2.38	OOT	8.61	12.48	3.92
inf-road_usa	8.63	12.37	OOT	4.06	3.48	OOT
delaunay_n23	6.60	7.99	OOT	6.34	10.52	OOT

inf-road_central	4.19	2.93	OOT	4.33	3.03	OOT
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Table 16: Number of solved instances for k=10 and 15

Time	k=10			k=15		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
1	2	2	0	0	0	0
3	3	4	0	2	0	0
10	10	8	1	8	4	2
30	15	14	3	14	10	2
100	16	15	3	16	14	2
300	16	16	3	16	15	2
1000	16	16	4	16	16	2
1800	16	16	4	16	16	2

Table 17: Running time of kPlexS, KpLeX and our algorithm for k=20 after removing extremely easy and hard graphs

gragh	k=20		
	Ours	kPlexS	KpLeX
connectus	OOT	OOT	OOT
consph	268.64	OOT	OOT
channel-500x100x100-b050	4.86	138.03	OOT
packing-500x100x100-b050	2.68	63.55	OOT
rgg_n_2_24_s0	69.45	67.92	OOT
hugebubbles-00020	22.21	33.75	OOT
rgg_n_2_23_s0	31.59	31.87	OOT
delaunay_n24	11.86	21.62	OOT
inf-europe_osm	7.27	6.97	13.25
cop20k_A	0.29	23.36	364.85
hugetrace-00020	4.39	3.88	8.41
rgg_n_2_22_s0	8.08	14.64	OOT
hugetrace-00010	9.08	14.12	OOT
inf-road_usa	9.26	13.19	OOT
delaunay_n23	6.53	11.21	OOT
inf-road_central	9.09	11.24	OOT

Table 18: Number of solved instances for k=20

Time	k=20		
	Ours	kPlexS	KpLeX
1	1	0	0
3	2	0	0
10	10	2	1
30	12	9	2
100	14	13	2
300	15	14	2
1000	15	14	3
1800	15	14	3

1.5 2nd-DIMACS

In this subsection, we show the running time comparison of three algorithms on the 2nd-DIMACS graphs for k=2,5,10,15 and 20.

Table 19: Running time of kPlexS, KpLeX and our algorithm for k=2 and 5

Graph	k=2			k=5		
	Ours	kPlexS	KpLex	Ours	kPlexS	KpLex
brock200_1	OOT	OOT	OOT	OOT	OOT	OOT
brock200_2	24.10	208.96	4.63	OOT	OOT	OOT
brock200_3	169.09	OOT	65.03	OOT	OOT	OOT
brock200_4	529.54	OOT	261.46	OOT	OOT	OOT
brock400_1	OOT	OOT	OOT	OOT	OOT	OOT
brock400_2	OOT	OOT	OOT	OOT	OOT	OOT
brock400_3	OOT	OOT	OOT	OOT	OOT	OOT
brock400_4	OOT	OOT	OOT	OOT	OOT	OOT
brock800_1	OOT	OOT	OOT	OOT	OOT	OOT
brock800_2	OOT	OOT	OOT	OOT	OOT	OOT
brock800_3	OOT	OOT	OOT	OOT	OOT	OOT
brock800_4	OOT	OOT	OOT	OOT	OOT	OOT
C1000.9	OOT	OOT	OOT	OOT	OOT	OOT
C125.9	OOT	OOT	OOT	OOT	OOT	OOT
C2000.5	OOT	OOT	OOT	OOT	OOT	OOT
C2000.9	OOT	OOT	OOT	OOT	OOT	OOT
C250.9	OOT	OOT	OOT	OOT	OOT	OOT
C4000.5	OOT	OOT	OOT	OOT	OOT	OOT

C500.9	OOT	OOT	OOT	OOT	OOT	OOT
c-fat200-1	0.00	0.00	0.00	0.00	0.00	0.00
c-fat200-2	0.00	0.00	0.00	0.00	0.00	0.01
c-fat200-5	0.01	0.01	0.01	0.01	0.01	OOT
c-fat500-1	0.00	0.00	0.01	0.00	0.00	0.01
c-fat500-10	0.05	0.06	0.05	0.06	0.08	OOT
c-fat500-2	0.01	0.01	0.00	0.01	0.00	0.03
c-fat500-5	0.02	0.02	0.02	0.02	0.02	122.09
DSJC1000_5	OOT	OOT	OOT	OOT	OOT	OOT
DSJC500_5	OOT	OOT	OOT	OOT	OOT	OOT
gen200_p0.9_44	OOT	OOT	OOT	OOT	OOT	OOT
gen200_p0.9_55	OOT	OOT	OOT	OOT	OOT	OOT
gen400_p0.9_55	OOT	OOT	OOT	OOT	OOT	OOT
gen400_p0.9_65	OOT	OOT	OOT	OOT	OOT	OOT
gen400_p0.9_75	OOT	OOT	OOT	OOT	OOT	OOT
hamming10-2	OOT	OOT	OOT	OOT	OOT	OOT
hamming10-4	OOT	OOT	OOT	OOT	OOT	OOT
hamming6-2	0.39	17.84	18.21	56.40	1,357.46	1,567.71
hamming6-4	0.01	0.01	0.01	0.04	0.01	0.04
hamming8-2	OOT	OOT	OOT	OOT	OOT	OOT
hamming8-4	OOT	OOT	OOT	OOT	OOT	OOT
johnson16-2-4	OOT	OOT	OOT	OOT	OOT	OOT
johnson32-2-4	OOT	OOT	OOT	OOT	OOT	OOT
johnson8-2-4	0.01	0.01	0.00	0.06	0.03	0.02
johnson8-4-4	3.12	17.05	2.58	1,797.18	OOT	407.74
keller4	208.87	1,713.13	51.00	OOT	OOT	OOT
keller5	OOT	OOT	OOT	OOT	OOT	OOT
keller6	OOT	OOT	OOT	OOT	OOT	OOT
MANN_a27	571.75	OOT	OOT	0.69	0.94	0.21
MANN_a45	OOT	OOT	OOT	15.78	21.70	1.58
MANN_a81	OOT	OOT	OOT	1,348.74	1,459.41	38.85
MANN_a9	0.01	0.92	0.29	0.00	0.00	0.00
p_hat1000-1	OOT	OOT	184.60	OOT	OOT	OOT
p_hat1000-2	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1000-3	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1500-1	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1500-2	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1500-3	OOT	OOT	OOT	OOT	OOT	OOT
p_hat300-1	7.52	18.06	0.67	682.31	OOT	79.64
p_hat300-2	112.16	OOT	932.68	542.67	OOT	OOT
p_hat300-3	OOT	OOT	OOT	OOT	OOT	OOT
p_hat500-1	113.60	894.21	6.76	OOT	OOT	OOT
p_hat500-2	OOT	OOT	OOT	OOT	OOT	OOT
p_hat500-3	OOT	OOT	OOT	OOT	OOT	OOT
p_hat700-1	603.26	OOT	31.13	OOT	OOT	OOT
p_hat700-2	OOT	OOT	OOT	OOT	OOT	OOT

p_hat700-3	OOT	OOT	OOT	OOT	OOT	OOT
san1000	OOT	OOT	OOT	OOT	OOT	OOT
san200_0.7_1	OOT	OOT	OOT	OOT	OOT	1,309.52
san200_0.7_2	OOT	OOT	OOT	OOT	OOT	OOT
san200_0.9_1	14.83	OOT	OOT	0.32	OOT	1.27
san200_0.9_2	OOT	OOT	OOT	OOT	OOT	OOT
san200_0.9_3	OOT	OOT	OOT	OOT	OOT	OOT
san400_0.5_1	OOT	OOT	OOT	OOT	OOT	OOT
san400_0.7_1	OOT	OOT	OOT	OOT	OOT	OOT
san400_0.7_2	OOT	OOT	OOT	OOT	OOT	OOT
san400_0.7_3	OOT	OOT	OOT	OOT	OOT	OOT
san400_0.9_1	OOT	OOT	OOT	OOT	OOT	OOT
sanr200_0.7	1,439.37	OOT	1,194.07	OOT	OOT	OOT
sanr200_0.9	OOT	OOT	OOT	OOT	OOT	OOT
sanr400_0.5	OOT	OOT	554.79	OOT	OOT	OOT
sanr400_0.7	OOT	OOT	OOT	OOT	OOT	OOT

Table 20: Number of solved instances for k=2 and 5

Time	k=2			k=5		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
1	11	10	11	12	11	8
3	11	10	12	12	11	10
10	13	10	14	12	11	10
30	15	13	15	13	12	10
100	15	13	18	14	12	12
300	19	14	20	14	12	13
1000	22	15	22	16	12	14
1800	23	16	23	18	14	16

Table 21: Running time comparison of Ours, kPlexS and KpLeX for k=10 and 15

Graph	k=10			k=15		
	Ours	kPlexS	KpLeX	Ours	kPlexS	KpLeX
brock200_1	OOT	OOT	OOT	OOT	OOT	OOT
brock200_2	OOT	OOT	OOT	OOT	OOT	0
brock200_3	OOT	OOT	OOT	OOT	OOT	46.47

brock200_4	OOT	OOT	OOT	OOT	OOT	139.11
brock400_1	OOT	OOT	OOT	OOT	OOT	0
brock400_2	OOT	OOT	OOT	OOT	OOT	OOT
brock400_3	OOT	OOT	OOT	OOT	OOT	OOT
brock400_4	OOT	OOT	OOT	OOT	OOT	OOT
brock800_1	OOT	OOT	OOT	OOT	OOT	OOT
brock800_2	OOT	OOT	OOT	OOT	OOT	OOT
brock800_3	OOT	OOT	OOT	OOT	OOT	OOT
brock800_4	OOT	OOT	OOT	OOT	OOT	358.95
C1000.9	OOT	OOT	OOT	OOT	OOT	OOT
C125.9	OOT	OOT	OOT	66.22	158.44	OOT
C2000.5	OOT	OOT	OOT	OOT	OOT	OOT
C2000.9	OOT	OOT	OOT	OOT	OOT	OOT
C250.9	OOT	OOT	OOT	OOT	OOT	OOT
C4000.5	OOT	OOT	OOT	OOT	OOT	OOT
C500.9	OOT	OOT	OOT	OOT	OOT	0
c-fat200-1	0	0	0.03	0	0	219.08
c-fat200-2	0.01	0	0.01	0	0	OOT
c-fat200-5	0.03	0.03	OOT	0.05	0.05	0.02
c-fat500-1	0	0	0.03	0	0	OOT
c-fat500-10	0.27	0.35	OOT	0.47	0.72	OOT
c-fat500-2	0.01	0.01	0.03	0.01	0.01	59.86
c-fat500-5	0.05	0.06	170.85	0.07	0.09	OOT
DSJC1000_5	OOT	OOT	OOT	OOT	OOT	OOT
DSJC500_5	OOT	OOT	OOT	OOT	OOT	OOT
gen200_p0.9_44	OOT	OOT	OOT	OOT	OOT	OOT
gen200_p0.9_55	OOT	OOT	OOT	OOT	OOT	OOT
gen400_p0.9_55	OOT	OOT	OOT	OOT	OOT	OOT
gen400_p0.9_65	OOT	OOT	OOT	OOT	OOT	0
gen400_p0.9_75	OOT	OOT	OOT	OOT	OOT	OOT
hamming10-2	OOT	OOT	OOT	0.07	0.06	OOT
hamming10-4	OOT	OOT	OOT	OOT	OOT	0
hamming6-2	0	0	0	0	0	0.38
hamming6-4	0.01	0.01	0.54	0.02	0	0
hamming8-2	0.01	0.01	0	0.01	0.01	OOT
hamming8-4	OOT	OOT	OOT	OOT	OOT	OOT
johnson16-2-4	OOT	OOT	OOT	OOT	OOT	OOT
johnson32-2-4	OOT	OOT	OOT	OOT	OOT	0
johnson8-2-4	0.01	0.02	0.05	0	0	OOT
johnson8-4-4	OOT	OOT	OOT	89.03	676.19	OOT
keller4	OOT	OOT	OOT	OOT	OOT	OOT
keller5	OOT	OOT	OOT	OOT	OOT	OOT
keller6	OOT	OOT	OOT	OOT	OOT	OOT
MANN_a27	275.17	OOT	2.62	0.01	0.01	OOT
MANN_a45	82.49	OOT	4.73	484.22	OOT	OOT
MANN_a81	OOT	OOT	79.82	OOT	OOT	OOT

MANN_a9	0	0	0	0	0	OOT
p_hat1000-1	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1000-2	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1000-3	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1500-1	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1500-2	OOT	OOT	OOT	OOT	OOT	OOT
p_hat1500-3	OOT	OOT	OOT	OOT	OOT	OOT
p_hat300-1	OOT	OOT	OOT	OOT	OOT	OOT
p_hat300-2	OOT	OOT	OOT	OOT	OOT	OOT
p_hat300-3	OOT	OOT	OOT	OOT	OOT	OOT
p_hat500-1	OOT	OOT	OOT	OOT	OOT	OOT
p_hat500-2	OOT	OOT	OOT	OOT	OOT	OOT
p_hat500-3	OOT	OOT	OOT	OOT	OOT	OOT
p_hat700-1	OOT	OOT	OOT	OOT	OOT	OOT
p_hat700-2	OOT	OOT	OOT	OOT	OOT	0.03
p_hat700-3	OOT	OOT	OOT	OOT	OOT	0
san1000	OOT	OOT	OOT	OOT	OOT	OOT
san200_0.7_1	0.03	0.03	0.02	0.03	0.03	OOT
san200_0.7_2	OOT	2.54	0.62	0	0	OOT
san200_0.9_1	OOT	OOT	OOT	OOT	OOT	OOT
san200_0.9_2	OOT	OOT	OOT	OOT	OOT	OOT
san200_0.9_3	OOT	OOT	OOT	OOT	OOT	0.19
san400_0.5_1	OOT	OOT	OOT	OOT	OOT	0.1
san400_0.7_1	0.17	0.17	0.16	0.2	0.19	OOT
san400_0.7_2	OOT	OOT	OOT	0.2	0.19	OOT
san400_0.7_3	OOT	OOT	OOT	OOT	OOT	OOT
san400_0.9_1	OOT	OOT	OOT	OOT	OOT	OOT
sanr200_0.7	OOT	OOT	OOT	OOT	OOT	OOT
sanr200_0.9	OOT	OOT	OOT	OOT	OOT	OOT
sanr400_0.5	OOT	OOT	OOT	OOT	OOT	OOT
sanr400_0.7	OOT	OOT	OOT	OOT	OOT	OOT

Table 22: Number of solved instances for k=10 and 15

Time	k=10			k=15		
	Ours	kPlexS	KpLex	Ours	kPlexS	KpLeX
1	14	14	12	18	18	13
3	14	15	13	18	18	13
10	14	15	14	18	18	13
30	14	15	14	18	18	13
100	15	15	15	20	18	15
300	16	15	16	20	19	17

1000	16	15	16	21	20	18
1800	16	15	16	21	20	18

Table 23: Running time comparison of Ours, kPlexS and KpLeX for k=20

Graph	k=20		
	Ours	kPlexS	KpLeX
brock200_1	OOT	OOT	OOT
brock200_2	OOT	OOT	OOT
brock200_3	OOT	OOT	OOT
brock200_4	OOT	OOT	OOT
brock400_1	OOT	OOT	OOT
brock400_2	OOT	OOT	OOT
brock400_3	OOT	OOT	OOT
brock400_4	OOT	OOT	OOT
brock800_1	OOT	OOT	OOT
brock800_2	OOT	OOT	OOT
brock800_3	OOT	OOT	OOT
brock800_4	OOT	OOT	OOT
C1000.9	OOT	OOT	OOT
C125.9	0.00	0.00	0.00
C2000.5	OOT	OOT	OOT
C2000.9	OOT	OOT	OOT
C250.9	OOT	OOT	OOT
C4000.5	OOT	OOT	OOT
C500.9	OOT	OOT	OOT
c-fat200-1	0.00	0.00	0.00
c-fat200-2	0.01	0.59	OOT
c-fat200-5	0.05	0.10	OOT
c-fat500-1	0.00	0.00	0.01
c-fat500-10	0.73	1.18	OOT
c-fat500-2	0.02	13.65	OOT
c-fat500-5	0.08	0.16	OOT
DSJC1000_5	OOT	OOT	OOT
DSJC500_5	OOT	OOT	OOT
gen200_p0.9_44	OOT	OOT	OOT
gen200_p0.9_55	OOT	OOT	OOT
gen400_p0.9_55	OOT	OOT	OOT
gen400_p0.9_65	OOT	OOT	OOT
gen400_p0.9_75	OOT	OOT	OOT
hamming10-2	0.07	0.06	0.00

hamming10-4	OOT	OOT	OOT
hamming6-2	0.00	0.00	0.00
hamming6-4	0.00	OOT	0.22
hamming8-2	0.01	0.01	0.00
hamming8-4	OOT	OOT	OOT
johnson16-2-4	OOT	OOT	OOT
johnson32-2-4	OOT	OOT	OOT
johnson8-2-4	0.00	0.00	0.00
johnson8-4-4	0.00	0.00	0.00
keller4	OOT	OOT	OOT
keller5	OOT	OOT	OOT
keller6	OOT	OOT	OOT
MANN_a27	0.01	0.01	0.00
MANN_a45	OOT	OOT	OOT
MANN_a81	OOT	OOT	367.50
MANN_a9	0.00	0.00	0.00
p_hat1000-1	OOT	OOT	OOT
p_hat1000-2	OOT	OOT	OOT
p_hat1000-3	OOT	OOT	OOT
p_hat1500-1	OOT	OOT	OOT
p_hat1500-2	OOT	OOT	OOT
p_hat1500-3	OOT	OOT	OOT
p_hat300-1	OOT	OOT	OOT
p_hat300-2	OOT	OOT	OOT
p_hat300-3	OOT	OOT	OOT
p_hat500-1	OOT	OOT	OOT
p_hat500-2	OOT	OOT	OOT
p_hat500-3	OOT	OOT	OOT
p_hat700-1	OOT	OOT	OOT
p_hat700-2	OOT	OOT	OOT
p_hat700-3	OOT	OOT	OOT
san1000	OOT	OOT	OOT
san200_0.7_1	98.66	OOT	OOT
san200_0.7_2	0.00	0.00	0.00
san200_0.9_1	OOT	OOT	OOT
san200_0.9_2	OOT	OOT	OOT
san200_0.9_3	OOT	OOT	OOT
san400_0.5_1	OOT	OOT	OOT
san400_0.7_1	0.19	0.19	0.20
san400_0.7_2	0.17	0.18	0.14
san400_0.7_3	0.19	0.18	0.11
san400_0.9_1	OOT	OOT	OOT
sanr200_0.7	OOT	OOT	OOT
sanr200_0.9	OOT	OOT	OOT
sanr400_0.5	OOT	OOT	OOT

sanr400_0.7 OOT OOT OOT

Table 24: Number of solved instances for $k=20$

Time	k=20		
	Ours	kPlexS	KpLeX
1	20	17	15
3	20	18	15
10	20	18	15
30	20	19	15
100	21	19	15
300	21	19	15
1000	21	19	16
1800	21	19	16

2 Graph Information

We show the information for each graph with respect to different k values.

In the following tables, column *graph*, K , *VtxNum*, *MaxKplex*, *Degeneracy* and *Gap* indicates the name of graph, the k value, the vertex number of the input graph, the edge number of the input graph, the size of the maximum k -plex in the graph, the degeneracy of the graph and the degeneracy gap $Degeneracy + K - MaxKplex$ of the graph. Note that if the size of the maximum k -plex is smaller than $2k-1$ and cannot be determined, we use $2k-2$ in column MaxKplex (because the optimal solution is trivially small as defined in the paper).

2.1 Network-Repo graphs

Table 25: Network-Repo graph information for $k=2$

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
bio-celegans	2	453	2,025	10	10	2
bio-diseasome	2	516	1,188	11	10	1
bio-dmela	2	7,393	25,569	8	11	5
bio-yeast	2	1,458	1,948	6	5	1
ca-AstroPh	2	17,903	196,972	57	56	1
ca-citeseer	2	227,320	814,134	87	86	1

ca-coauthors-dblp	2	540,486	15,245,729	337	336	1
ca-CondMat	2	21,363	91,286	26	25	1
ca-CSphd	2	1,882	1,740	4	2	0
ca-dblp-2010	2	226,413	716,460	75	74	1
ca-dblp-2012	2	317,080	1,049,866	114	113	1
ca-Erdos992	2	5,094	7,515	8	7	1
ca-GrQc	2	4,158	13,422	44	43	1
ca-HepPh	2	11,204	117,619	239	238	1
ca-hollywood-2009	2	1,069,126	56,306,653	2209	2208	1
ca-MathSciNet	2	332,689	820,644	25	24	1
ca-netscience	2	379	914	9	8	1
ia-email-EU	2	32,430	54,397	15	22	9
ia-email-univ	2	1,133	5,451	12	11	1
ia-enron-large	2	33,696	180,811	22	43	23
ia-enron-only	2	143	623	10	9	1
ia-fb-messages	2	1,266	6,451	6	11	7
ia-infect-dublin	2	410	2,765	17	17	2
ia-infect-hyper	2	113	2,196	19	28	11
ia-reality	2	6,809	7,680	6	5	1
ia-wiki-Talk	2	92,117	360,767	18	58	42
inf-power	2	4,941	6,594	6	5	1
inf-roadNet-CA	2	1,957,027	2,760,388	5	3	0
inf-roadNet-PA	2	1,087,562	1,541,514	5	3	0
inf-road-usa	2	23,947,347	28,854,312	5	3	0
rec-amazon	2	91,813	125,704	6	4	0
rt-retweet	2	96	117	4	3	1
rt-retweet-crawl	2	1,112,702	2,278,852	14	18	6
rt-twitter-copen	2	761	1,029	5	4	1
scc_enron-only	2	146	9,828	121	119	0
scc_fb-forum	2	488	71,011	266	272	8
scc_fb-messages	2	1,303	531,893	708	706	0
scc_infect-dublin	2	10,972	175,573	84	83	1
scc_infect-hyper	2	113	6,222	106	105	1
scc_reality	2	6,809	4,714,485	1236	1235	1
scc_retweet	2	1,206	65,990	166	174	10
scc_retweet-crawl	2	17,151	24,015	21	19	0
scc_rt_alwefaq	2	72	355	17	15	0
scc_rt_assad	2	34	96	9	7	0
scc_rt_bahrain	2	72	129	9	7	0
scc_rt_barackobama	2	80	226	11	9	0
scc_rt_damascus	2	34	41	6	4	0
scc_rt_dash	2	31	39	6	5	1
scc_rt_gmanews	2	135	1,078	22	21	1
scc_rt_gop	2	13	7	3	1	0
scc_rt_http	2	5	6	4	2	0
scc_rt_israel	2	22	12	3	1	0

scc_rt_justinbieber	2	62	442	18	16	0
scc_rt_ksa	2	21	23	6	5	1
scc_rt_lebanon	2	10	5	2	1	1
scc_rt_libya	2	27	26	4	2	0
scc_rt_lolgop	2	273	4,510	43	41	0
scc_rt_mittromney	2	102	108	6	4	0
scc_rt_obama	2	8	4	2	1	1
scc_rt_occupy	2	55	60	5	4	1
scc_rt_occupywallstnyc	2	127	931	19	17	0
scc_rt_oman	2	16	13	4	2	0
scc_rt_onedirection	2	35	368	27	26	1
scc_rt_p2	2	26	15	3	1	0
scc_rt_qatif	2	14	11	3	2	1
scc_rt_saudi	2	28	91	9	7	0
scc_rt_tcot	2	26	18	4	2	0
scc_rt_tlot	2	13	8	3	1	0
scc_rt_uae	2	18	12	3	2	1
scc_rt_voteonedirection	2	7	5	3	2	1
scc_twitter-copen	2	2,623	473,614	581	582	3
sc-ldoor	2	909,537	20,770,807	21	34	15
sc-msdoor	2	404,785	9,378,650	21	34	15
sc-nasasrb	2	54,870	1,311,227	24	35	13
sc-pkustk11	2	87,804	2,565,054	36	47	13
sc-pkustk13	2	94,893	3,260,967	36	41	7
sc-pwtk	2	217,891	5,653,221	24	35	13
sc-shipsec1	2	140,385	1,707,759	24	24	2
sc-shipsec5	2	179,104	2,200,076	24	29	7
soc-brightkite	2	56,739	212,945	44	52	10
soc-delicious	2	536,108	1,365,961	23	33	12
soc-dolphins	2	62	159	6	4	0
soc-douban	2	154,908	327,162	12	15	5
soc-epinions	2	26,588	100,120	18	32	16
socfb-A-anon	2	3,097,165	23,667,394	28	74	48
socfb-B-anon	2	2,937,612	20,959,854	27	63	38
socfb-Berkeley13	2	22,900	852,419	47	64	19
socfb-CMU	2	6,621	249,959	47	69	24
socfb-Duke14	2	9,885	506,437	38	85	49
socfb-Indiana	2	29,732	1,305,757	51	76	27
socfb-MIT	2	6,402	251,230	37	72	37
socfb-OR	2	63,392	816,886	33	52	21
socfb-Penn94	2	41,536	1,362,220	50	62	14
socfb-Stanford3	2	11,586	568,309	59	91	34
socfb-Texas84	2	36,364	1,590,651	55	81	28
socfb-uci-uni	2	58,790,782	92,208,195	9	16	9
socfb-UCLA	2	20,453	747,604	55	65	12
socfb-UConn	2	17,206	604,867	53	65	14

socfb-UCSB37	2	14,917	482,215	59	65	8
socfb-UF	2	35,111	1,465,654	60	83	25
socfb-Uillinois	2	30,795	1,264,421	63	85	24
socfb-Wisconsin87	2	23,831	835,946	42	60	20
soc-flixster	2	2,523,386	7,918,801	38	68	32
soc-FourSquare	2	639,014	3,214,986	35	63	30
soc-gowalla	2	196,591	950,327	30	51	23
soc-karate	2	34	78	6	4	0
soc-lastfm	2	1,191,805	4,519,330	18	70	54
soc-livejournal	2	4,033,137	27,933,062	214	213	1
soc-LiveMocha	2	104,103	2,193,083	19	92	75
soc-orkut	2	2,997,166	106,349,209	52	230	180
soc-pokec	2	1,632,803	22,301,964	31	47	18
soc-slashdot	2	70,068	358,647	31	53	24
soc-twitter-follows	2	404,719	713,319	8	28	22
soc-wiki-Vote	2	889	2,914	8	9	3
soc-youtube	2	495,957	1,936,748	20	49	31
soc-youtube-snap	2	1,134,890	2,987,624	20	51	33
tech-as-caida2007	2	26,475	53,381	17	22	7
tech-as-skitter	2	1,694,616	11,094,209	69	111	44
tech-internet-as	2	40,164	85,123	18	23	7
tech-p2p-gnutella	2	62,561	147,878	5	6	3
tech-RL-caida	2	190,914	607,610	20	32	14
tech-routers-rf	2	2,113	6,632	17	15	0
tech-WHOIS	2	7,476	56,943	64	88	26
web-arabic-2005	2	163,598	1,747,269	102	101	1
web-BerkStan	2	12,305	19,500	29	28	1
web-edu	2	3,031	6,474	30	29	1
web-google	2	1,299	2,773	19	17	0
web-indochina-2004	2	11,358	47,606	50	49	1
web-it-2004	2	509,338	7,178,413	432	431	1
web-polblogs	2	643	2,280	12	12	2
web-sk-2005	2	121,422	334,419	82	81	1
web-spam	2	4,767	37,375	21	35	16
web-uk-2005	2	129,632	11,744,049	500	499	1
web-webbase-2001	2	16,062	25,593	33	32	1
web-wikipedia2009	2	1,864,433	4,507,315	32	66	36

Table 26: Network-Repo graph information for k=5

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
bio-celegans	5	453	2,025	14	10	1

bio-diseasome	5	516	1,188	11	10	4
bio-dmela	5	7,393	25,569	12	11	4
bio-yeast	5	1,458	1,948	8	5	2
ca-AstroPh	5	17,903	196,972	57	56	4
ca-citeseer	5	227,320	814,134	87	86	4
ca-coauthors-dblp	5	540,486	15,245,729	337	336	4
ca-CondMat	5	21,363	91,286	26	25	4
ca-CSphd	5	1,882	1,740	8	2	0
ca-dblp-2010	5	226,413	716,460	75	74	4
ca-dblp-2012	5	317,080	1,049,866	114	113	4
ca-Erdos992	5	5,094	7,515	11	7	1
ca-GrQc	5	4,158	13,422	46	43	2
ca-HepPh	5	11,204	117,619	239	238	4
ca-hollywood-2009	5	1,069,126	56,306,653	2209	2208	4
ca-MathSciNet	5	332,689	820,644	25	24	4
ca-netscience	5	379	914	10	8	3
ia-email-EU	5	32,430	54,397	20	22	7
ia-email-univ	5	1,133	5,451	13	11	3
ia-enron-large	5	33,696	180,811	28	43	20
ia-enron-only	5	143	623	13	9	1
ia-fb-messages	5	1,266	6,451	10	11	6
ia-infect-dublin	5	410	2,765	19	17	3
ia-infect-hyper	5	113	2,196	25	28	8
ia-reality	5	6,809	7,680	9	5	1
ia-wiki-Talk	5	92,117	360,767	25	58	38
inf-power	5	4,941	6,594	9	5	1
inf-roadNet-CA	5	1,957,027	2,760,388	8	3	0
inf-roadNet-PA	5	1,087,562	1,541,514	8	3	0
inf-road-usa	5	23,947,347	28,854,312	8	3	0
rec-amazon	5	91,813	125,704	8	4	1
rt-retweet	5	96	117	7	3	1
rt-retweet-crawl	5	1,112,702	2,278,852	17	18	6
rt-twitter-copen	5	761	1,029	9	4	0
scc_enron-only	5	146	9,828	123	119	1
scc_fb-forum	5	488	71,011	272	272	5
scc_fb-messages	5	1,303	531,893	709	706	2
scc_infect-dublin	5	10,972	175,573	84	83	4
scc_infect-hyper	5	113	6,222	107	105	3
scc_reality	5	6,809	4,714,485	1237	1235	3
scc_retweet	5	1,206	65,990	170	174	9
scc_retweet-crawl	5	17,151	24,015	22	19	2
scc_rt_alwefaq	5	72	355	19	15	1
scc_rt_assad	5	34	96	12	7	0
scc_rt_bahrain	5	72	129	11	7	1
scc_rt_barackobama	5	80	226	14	9	0
scc_rt_damascus	5	34	41	8	4	1

scc_rt_dash	5	31	39	8	5	2
scc_rt_gmanews	5	135	1,078	25	21	1
scc_rt_gop	5	13	7	6	1	0
scc_rt_http	5	5	6	5	2	2
scc_rt_israel	5	22	12	6	1	0
scc_rt_justinbieber	5	62	442	20	16	1
scc_rt_ksa	5	21	23	6	5	4
scc_rt_lebanon	5	10	5	6	1	0
scc_rt_libya	5	27	26	8	2	0
scc_rt_lolgop	5	273	4,510	44	41	2
scc_rt_mittromney	5	102	108	9	4	0
scc_rt_obama	5	8	4	6	1	0
scc_rt_occupy	5	55	60	8	4	1
scc_rt_occupywallstnyc	5	127	931	22	17	0
scc_rt_oman	5	16	13	6	2	1
scc_rt_onedirection	5	35	368	27	26	4
scc_rt_p2	5	26	15	8	1	0
scc_rt_qatif	5	14	11	8	2	0
scc_rt_saudi	5	28	91	12	7	0
scc_rt_tcot	5	26	18	6	2	1
scc_rt_tlot	5	13	8	6	1	0
scc_rt_uae	5	18	12	8	2	0
scc_rt_voteonedirection	5	7	5	8	2	0
scc_twitter-copen	5	2,623	473,614	582	582	5
sc-msdoor	5	404,785	9,378,650	23	34	16
sc-nasasrb	5	54,870	1,311,227	24	35	16
sc-pkustk11	5	87,804	2,565,054	36	47	16
sc-pkustk13	5	94,893	3,260,967	36	41	10
sc-pwtk	5	217,891	5,653,221	26	35	14
sc-shipsec1	5	140,385	1,707,759	24	24	5
sc-shipsec5	5	179,104	2,200,076	26	29	8
soc-brightkite	5	56,739	212,945	51	52	6
soc-delicious	5	536,108	1,365,961	30	33	8
soc-dolphins	5	62	159	9	4	0
soc-douban	5	154,908	327,162	17	15	3
soc-epinions	5	26,588	100,120	25	32	12
socfb-A-anon	5	3,097,165	23,667,394	37	74	42
socfb-B-anon	5	2,937,612	20,959,854	35	63	33
socfb-Berkeley13	5	22,900	852,419	53	64	16
socfb-CMU	5	6,621	249,959	52	69	22
socfb-Duke14	5	9,885	506,437	48	85	42
socfb-Indiana	5	29,732	1,305,757	59	76	22
socfb-MIT	5	6,402	251,230	48	72	29
socfb-OR	5	63,392	816,886	42	52	15
socfb-Penn94	5	41,536	1,362,220	55	62	12
socfb-Stanford3	5	11,586	568,309	67	91	29

socfb-Texas84	5	36,364	1,590,651	68	81	18
socfb-uci-uni	5	58,790,782	92,208,195	13	16	8
socfb-UCLA	5	20,453	747,604	62	65	8
socfb-UConn	5	17,206	604,867	60	65	10
socfb-UCSB37	5	14,917	482,215	68	65	2
socfb-UF	5	35,111	1,465,654	73	83	15
socfb-Ullinois	5	30,795	1,264,421	73	85	17
socfb-Wisconsin87	5	23,831	835,946	50	60	15
soc-flixster	5	2,523,386	7,918,801	49	68	24
soc-FourSquare	5	639,014	3,214,986	44	63	24
soc-gowalla	5	196,591	950,327	32	51	24
soc-karate	5	34	78	9	4	0
soc-lastfm	5	1,191,805	4,519,330	27	70	48
soc-livejournal	5	4,033,137	27,933,062	214	213	4
soc-LiveMocha	5	104,103	2,193,083	28	92	69
soc-pokec	5	1,632,803	22,301,964	34	47	18
soc-slashdot	5	70,068	358,647	40	53	18
soc-twitter-follows	5	404,719	713,319	13	28	20
soc-wiki-Vote	5	889	2,914	12	9	2
soc-youtube	5	495,957	1,936,748	26	49	28
soc-youtube-snap	5	1,134,890	2,987,624	26	51	30
tech-as-caida2007	5	26,475	53,381	23	22	4
tech-as-skitter	5	1,694,616	11,094,209	75	111	41
tech-internet-as	5	40,164	85,123	22	23	6
tech-p2p-gnutella	5	62,561	147,878	10	6	1
tech-RL-caida	5	190,914	607,610	26	32	11
tech-routers-rf	5	2,113	6,632	20	15	0
tech-WHOIS	5	7,476	56,943	76	88	17
web-arabic-2005	5	163,598	1,747,269	102	101	4
web-BerkStan	5	12,305	19,500	29	28	4
web-edu	5	3,031	6,474	30	29	4
web-google	5	1,299	2,773	19	17	3
web-indochina-2004	5	11,358	47,606	50	49	4
web-it-2004	5	509,338	7,178,413	432	431	4
web-polblogs	5	643	2,280	17	12	0
web-sk-2005	5	121,422	334,419	83	81	3
web-spam	5	4,767	37,375	30	35	10
web-uk-2005	5	129,632	11,744,049	500	499	4
web-webbase-2001	5	16,062	25,593	33	32	4
web-wikipedia2009	5	1,864,433	4,507,315	32	66	39

Table 27: Network-Repo graph information for k=10

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
bio-celegans	10	453	2,025	20	10	0
bio-diseasome	10	516	1,188	18	10	2
bio-dmela	10	7,393	25,569	19	11	2
bio-yeast	10	1,458	1,948	18	5	0
ca-AstroPh	10	17,903	196,972	57	56	9
ca-citeseer	10	227,320	814,134	87	86	9
ca-coauthors-dblp	10	540,486	15,245,729	337	336	9
ca-CondMat	10	21,363	91,286	28	25	7
ca-CSphd	10	1,882	1,740	18	2	0
ca-dblp-2010	10	226,413	716,460	75	74	9
ca-dblp-2012	10	317,080	1,049,866	114	113	9
ca-Erdos992	10	5,094	7,515	18	7	0
ca-GrQc	10	4,158	13,422	46	43	7
ca-HepPh	10	11,204	117,619	239	238	9
ca-hollywood-2009	10	1,069,126	56,306,653	2209	2208	9
ca-MathSciNet	10	332,689	820,644	25	24	9
ca-netscience	10	379	914	17	8	1
ia-email-EU	10	32,430	54,397	26	22	6
ia-email-univ	10	1,133	5,451	18	11	3
ia-enron-large	10	33,696	180,811	38	43	15
ia-enron-only	10	143	623	17	9	2
ia-fb-messages	10	1,266	6,451	18	11	3
ia-infect-dublin	10	410	2,765	27	17	0
ia-infect-hyper	10	113	2,196	33	28	5
ia-reality	10	6,809	7,680	15	5	0
ia-wiki-Talk	10	92,117	360,767	35	58	33
inf-power	10	4,941	6,594	18	5	0
inf-roadNet-CA	10	1,957,027	2,760,388	18	3	0
inf-roadNet-PA	10	1,087,562	1,541,514	18	3	0
inf-road-usa	10	23,947,347	28,854,312	18	3	0
rec-amazon	10	91,813	125,704	18	4	0
rt-retweet	10	96	117	12	3	1
rt-retweet-crawl	10	1,112,702	2,278,852	25	18	3
rt-twitter-copen	10	761	1,029	18	4	0
scc_enron-only	10	146	9,828	128	119	1
scc_fb-forum	10	488	71,011	281	272	1
scc_fb-messages	10	1,303	531,893	710	706	6
scc_infect-dublin	10	10,972	175,573	84	83	9
scc_infect-hyper	10	113	6,222	107	105	8
scc_reality	10	6,809	4,714,485	1239	1235	6
scc_retweet	10	1,206	65,990	176	174	8
scc_retweet-crawl	10	17,151	24,015	27	19	2

scc_rt_alwefaq	10	72	355	21	15	4
scc_rt_assad	10	34	96	15	7	2
scc_rt_bahrain	10	72	129	15	7	2
scc_rt_barackobama	10	80	226	18	9	1
scc_rt_damascus	10	34	41	11	4	3
scc_rt_dash	10	31	39	18	5	0
scc_rt_gmanews	10	135	1,078	29	21	2
scc_rt_gop	10	13	7	11	1	0
scc_rt_http	10	5	6	5	2	7
scc_rt_israel	10	22	12	18	1	0
scc_rt_justinbieber	10	62	442	25	16	1
scc_rt_ksa	10	21	23	18	5	0
scc_rt_lebanon	10	10	5	10	1	1
scc_rt_libya	10	27	26	11	2	1
scc_rt_lolgov	10	273	4,510	49	41	2
scc_rt_mittromney	10	102	108	13	4	1
scc_rt_obama	10	8	4	8	1	3
scc_rt_occupy	10	55	60	12	4	2
scc_rt_occupywallstnyc	10	127	931	26	17	1
scc_rt_oman	10	16	13	11	2	1
scc_rt_onedirection	10	35	368	27	26	9
scc_rt_p2	10	26	15	11	1	0
scc_rt_qatif	10	14	11	18	2	0
scc_rt_saudi	10	28	91	14	7	3
scc_rt_tcot	10	26	18	11	2	1
scc_rt_tlot	10	13	8	11	1	0
scc_rt_uae	10	18	12	18	2	0
scc_rt_voteonedirection	10	7	5	7	2	5
scc_twitter-copen	10	2,623	473,614	587	582	5
sc-ldoor	10	909,537	20,770,807	35	34	9
sc-msdoor	10	404,785	9,378,650	35	34	9
sc-nasasrb	10	54,870	1,311,227	31	35	14
sc-pkustk11	10	87,804	2,565,054	48	47	9
sc-pkustk13	10	94,893	3,260,967	45	41	6
sc-pwtk	10	217,891	5,653,221	33	35	12
sc-shipsec1	10	140,385	1,707,759	29	24	5
sc-shipsec5	10	179,104	2,200,076	31	29	8
soc-brightkite	10	56,739	212,945	58	52	4
soc-delicious	10	536,108	1,365,961	37	33	6
soc-digg	10	770,799	5,907,132	87	236	159
soc-dolphins	10	62	159	14	4	0
soc-douban	10	154,908	327,162	21	15	4
soc-epinions	10	26,588	100,120	33	32	9
socfb-A-anon	10	3,097,165	23,667,394	47	74	37
socfb-B-anon	10	2,937,612	20,959,854	47	63	26
socfb-Berkeley13	10	22,900	852,419	62	64	12

socfb-CMU	10	6,621	249,959	57	69	22
socfb-Duke14	10	9,885	506,437	60	85	35
socfb-Indiana	10	29,732	1,305,757	70	76	16
socfb-MIT	10	6,402	251,230	57	72	25
socfb-OR	10	63,392	816,886	53	52	9
socfb-Penn94	10	41,536	1,362,220	60	62	12
socfb-Stanford3	10	11,586	568,309	75	91	26
socfb-Texas84	10	36,364	1,590,651	79	81	12
socfb-uci-uni	10	58,790,782	92,208,195	21	16	5
socfb-UCLA	10	20,453	747,604	67	65	8
socfb-UConn	10	17,206	604,867	67	65	8
socfb-UCSB37	10	14,917	482,215	75	65	0
socfb-UF	10	35,111	1,465,654	83	83	10
socfb-Uillinois	10	30,795	1,264,421	82	85	13
socfb-Wisconsin87	10	23,831	835,946	59	60	11
soc-flixster	10	2,523,386	7,918,801	62	68	16
soc-FourSquare	10	639,014	3,214,986	53	63	20
soc-gowalla	10	196,591	950,327	42	51	19
soc-karate	10	34	78	13	4	1
soc-lastfm	10	1,191,805	4,519,330	38	70	42
soc-livejournal	10	4,033,137	27,933,062	217	213	6
soc-LiveMocha	10	104,103	2,193,083	41	92	61
soc-orkut	10	2,997,166	106,349,209	89	230	151
soc-pokec	10	1,632,803	22,301,964	45	47	12
soc-slashdot	10	70,068	358,647	51	53	12
soc-twitter-follows	10	404,719	713,319	21	28	17
soc-wiki-Vote	10	889	2,914	18	9	1
soc-youtube	10	495,957	1,936,748	35	49	24
soc-youtube-snap	10	1,134,890	2,987,624	35	51	26
tech-as-caida2007	10	26,475	53,381	29	22	3
tech-as-skitter	10	1,694,616	11,094,209	84	111	37
tech-internet-as	10	40,164	85,123	29	23	4
tech-p2p-gnutella	10	62,561	147,878	18	6	0
tech-RL-caida	10	190,914	607,610	35	32	7
tech-routers-rf	10	2,113	6,632	24	15	1
tech-WHOIS	10	7,476	56,943	87	88	11
web-arabic-2005	10	163,598	1,747,269	102	101	9
web-BerkStan	10	12,305	19,500	29	28	9
web-edu	10	3,031	6,474	30	29	9
web-google	10	1,299	2,773	19	17	8
web-indochina-2004	10	11,358	47,606	50	49	9
web-it-2004	10	509,338	7,178,413	432	431	9
web-polblogs	10	643	2,280	22	12	0
web-sk-2005	10	121,422	334,419	84	81	7
web-spam	10	4,767	37,375	40	35	5
web-uk-2005	10	129,632	11,744,049	500	499	9

web-webbase-2001	10	16,062	25,593	33	32	9
web-wikipedia2009	10	1,864,433	4,507,315	33	66	0

Table 28: Network-Repo graph information for k=15

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
bio-celegans	15	453	2,025	25	10	0
bio-diseasome	15	516	1,188	28	10	0
bio-dmela	15	7,393	25,569	28	11	0
bio-yeast	15	1,458	1,948	18	5	2
ca-AstroPh	15	17,903	196,972	58	56	13
ca-citeseer	15	227,320	814,134	87	86	14
ca-coauthors-dblp	15	540,486	15,245,729	337	336	14
ca-CondMat	15	21,363	91,286	32	25	8
ca-CSphd	15	1,882	1,740	17	2	0
ca-dblp-2010	15	226,413	716,460	75	74	14
ca-dblp-2012	15	317,080	1,049,866	114	113	14
ca-Erdos992	15	5,094	7,515	28	7	0
ca-GrQc	15	4,158	13,422	46	43	12
ca-HepPh	15	11,204	117,619	239	238	14
ca-hollywood-2009	15	1,069,126	56,306,653	2209	2208	14
ca-MathSciNet	15	332,689	820,644	29	24	10
ca-netscience	15	379	914	28	8	0
ia-email-EU	15	32,430	54,397	33	22	4
ia-email-univ	15	1,133	5,451	28	11	0
ia-enron-large	15	33,696	180,811	45	43	13
ia-enron-only	15	143	623	28	9	0
ia-fb-messages	15	1,266	6,451	28	11	0
ia-infect-dublin	15	410	2,765	32	17	0
ia-infect-hyper	15	113	2,196	39	28	4
ia-reality	15	6,809	7,680	28	5	0
ia-wiki-Talk	15	92,117	360,767	44	58	29
inf-power	15	4,941	6,594	28	5	0
inf-roadNet-CA	15	1,957,027	2,760,388	28	3	0
inf-roadNet-PA	15	1,087,562	1,541,514	28	3	0
inf-road-usa	15	23,947,347	28,854,312	28	3	0
rec-amazon	15	91,813	125,704	28	4	0
rt-retweet	15	96	117	28	3	0
rt-retweet-crawl	15	1,112,702	2,278,852	31	18	2
rt-twitter-copen	15	761	1,029	19	4	0
scc_enron-only	15	146	9,828	131	119	3
scc_fb-forum	15	488	71,011	284	272	3

scc_fb-messages	15	1,303	531,893	714	706	7
scc_infect-dublin	15	10,972	175,573	87	83	11
scc_infect-hyper	15	113	6,222	110	105	10
scc_reality	15	6,809	4,714,485	1244	1235	6
scc_retweet	15	1,206	65,990	184	174	5
scc_retweet-crawl	15	17,151	24,015	31	19	3
scc_rt_alwefaq	15	72	355	24	15	6
scc_rt_assad	15	34	96	17	7	5
scc_rt_bahrain	15	72	129	18	7	4
scc_rt_barackobama	15	80	226	21	9	3
scc_rt_damascus	15	34	41	16	4	3
scc_rt_dash	15	31	39	28	5	0
scc_rt_gmanews	15	135	1,078	35	21	1
scc_rt_gop	15	13	7	13	1	3
scc_rt_http	15	5	6	5	2	12
scc_rt_israel	15	22	12	16	1	0
scc_rt_justinbieber	15	62	442	28	16	3
scc_rt_ksa	15	21	23	28	5	0
scc_rt_lebanon	15	10	5	10	1	6
scc_rt_libya	15	27	26	16	2	1
scc_rt_lolgop	15	273	4,510	53	41	3
scc_rt_mittromney	15	102	108	17	4	2
scc_rt_obama	15	8	4	8	1	8
scc_rt_occupy	15	55	60	16	4	3
scc_rt_occupywallstnyc	15	127	931	32	17	0
scc_rt_oman	15	16	13	16	2	1
scc_rt_onedirection	15	35	368	27	26	14
scc_rt_p2	15	26	15	16	1	0
scc_rt_qatif	15	14	11	14	2	3
scc_rt_saudi	15	28	91	28	7	0
scc_rt_tcot	15	26	18	28	2	0
scc_rt_tlot	15	13	8	13	1	3
scc_rt_uae	15	18	12	16	2	1
scc_rt_voteonedirection	15	7	5	7	2	10
scc_twitter-copen	15	2,623	473,614	597	582	0
sc_ldoor	15	909,537	20,770,807	42	34	7
sc_msdoor	15	404,785	9,378,650	42	34	7
sc_nasasrb	15	54,870	1,311,227	36	35	14
sc_pkustk11	15	87,804	2,565,054	48	47	14
sc_pkustk13	15	94,893	3,260,967	50	41	6
sc_pwtk	15	217,891	5,653,221	38	35	12
sc_shipsec1	15	140,385	1,707,759	34	24	5
sc_shipsec5	15	179,104	2,200,076	38	29	6
soc_brightkite	15	56,739	212,945	65	52	2
soc_delicious	15	536,108	1,365,961	43	33	5
soc_digg	15	770,799	5,907,132	100	236	151

soc-dolphins	15	62	159	28	4	0
soc-douban	15	154,908	327,162	28	15	2
soc-epinions	15	26,588	100,120	40	32	7
socfb-A-anon	15	3,097,165	23,667,394	54	74	35
socfb-B-anon	15	2,937,612	20,959,854	57	63	21
socfb-Berkeley13	15	22,900	852,419	69	64	10
socfb-CMU	15	6,621	249,959	62	69	22
socfb-Duke14	15	9,885	506,437	70	85	30
socfb-Indiana	15	29,732	1,305,757	75	76	16
socfb-MIT	15	6,402	251,230	61	72	26
socfb-OR	15	63,392	816,886	59	52	8
socfb-Penn94	15	41,536	1,362,220	64	62	13
socfb-Stanford3	15	11,586	568,309	77	91	29
socfb-Texas84	15	36,364	1,590,651	87	81	9
socfb-uci-uni	15	58,790,782	92,208,195	28	16	3
socfb-UCLA	15	20,453	747,604	70	65	10
socfb-UConn	15	17,206	604,867	73	65	7
socfb-UCSB37	15	14,917	482,215	78	65	2
socfb-UF	15	35,111	1,465,654	91	83	7
socfb-Uillinois	15	30,795	1,264,421	89	85	11
socfb-Wisconsin87	15	23,831	835,946	67	60	8
soc-flixster	15	2,523,386	7,918,801	72	68	11
soc-FourSquare	15	639,014	3,214,986	59	63	19
soc-gowalla	15	196,591	950,327	49	51	17
soc-karate	15	34	78	18	4	1
soc-lastfm	15	1,191,805	4,519,330	47	70	38
soc-livejournal	15	4,033,137	27,933,062	221	213	7
soc-LiveMocha	15	104,103	2,193,083	52	92	55
soc-orkut	15	2,997,166	106,349,209	101	230	144
soc-pokec	15	1,632,803	22,301,964	49	47	13
soc-slashdot	15	70,068	358,647	59	53	9
soc-twitter-follows	15	404,719	713,319	30	28	13
soc-wiki-Vote	15	889	2,914	28	9	0
soc-youtube	15	495,957	1,936,748	43	49	21
soc-youtube-snap	15	1,134,890	2,987,624	43	51	23
tech-as-caida2007	15	26,475	53,381	36	22	1
tech-as-skitter	15	1,694,616	11,094,209	95	111	31
tech-internet-as	15	40,164	85,123	37	23	1
tech-p2p-gnutella	15	62,561	147,878	28	6	0
tech-RL-caida	15	190,914	607,610	41	32	6
tech-routers-rf	15	2,113	6,632	29	15	1
tech-WHOIS	15	7,476	56,943	96	88	7
web-arabic-2005	15	163,598	1,747,269	102	101	14
web-BerkStan	15	12,305	19,500	29	28	14
web-edu	15	3,031	6,474	30	29	14
web-google	15	1,299	2,773	28	17	4

web-indochina-2004	15	11,358	47,606	50	49	14
web-it-2004	15	509,338	7,178,413	432	431	14
web-polblogs	15	643	2,280	27	12	0
web-sk-2005	15	121,422	334,419	84	81	12
web-spam	15	4,767	37,375	47	35	3
web-uk-2005	15	129,632	11,744,049	500	499	14
web-webbase-2001	15	16,062	25,593	33	32	14

Table 29: Network-Repo graph information for k=20

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
bio-celegans	20	453	2,025	38	10	0
bio-diseasome	20	516	1,188	38	10	0
bio-dmela	20	7,393	25,569	31	11	0
bio-yeast	20	1,458	1,948	38	5	0
ca-AstroPh	20	17,903	196,972	64	56	12
ca-citeseer	20	227,320	814,134	87	86	19
ca-coauthors-dblp	20	540,486	15,245,729	337	336	19
ca-CondMat	20	21,363	91,286	38	25	7
ca-CSphd	20	1,882	1,740	38	2	0
ca-dblp-2010	20	226,413	716,460	75	74	19
ca-dblp-2012	20	317,080	1,049,866	114	113	19
ca-Erdos992	20	5,094	7,515	38	7	0
ca-GrQc	20	4,158	13,422	46	43	17
ca-HepPh	20	11,204	117,619	239	238	19
ca-hollywood-2009	20	1,069,126	56,306,653	2209	2208	19
ca-MathSciNet	20	332,689	820,644	38	24	6
ca-netscience	20	379	914	38	8	0
ia-email-EU	20	32,430	54,397	39	22	3
ia-email-univ	20	1,133	5,451	38	11	0
ia-enron-large	20	33,696	180,811	51	43	12
ia-enron-only	20	143	623	38	9	0
ia-fb-messages	20	1,266	6,451	38	11	0
ia-infect-dublin	20	410	2,765	38	17	0
ia-infect-hyper	20	113	2,196	46	28	2
ia-reality	20	6,809	7,680	38	5	0
inf-power	20	4,941	6,594	38	5	0
inf-roadNet-CA	20	1,957,027	2,760,388	38	3	0
inf-roadNet-PA	20	1,087,562	1,541,514	38	3	0
inf-road-usa	20	23,947,347	28,854,312	38	3	0
rec-amazon	20	91,813	125,704	38	4	0
rt-retweet	20	96	117	22	3	1

rt-retweet-crawl	20	1,112,702	2,278,852	38	18	0
rt-twitter-copen	20	761	1,029	23	4	1
scc_enron-only	20	146	9,828	132	119	7
scc_fb-forum	20	488	71,011	289	272	3
scc_fb-messages	20	1,303	531,893	715	706	11
scc_infect-dublin	20	10,972	175,573	91	83	12
scc_infect-hyper	20	113	6,222	112	105	13
scc_reality	20	6,809	4,714,485	1251	1235	4
scc_retweet	20	1,206	65,990	191	174	3
scc_retweet-crawl	20	17,151	24,015	38	19	1
scc_rt_alwefaq	20	72	355	28	15	7
scc_rt_assad	20	34	96	21	7	6
scc_rt_bahrain	20	72	129	38	7	0
scc_rt_barackobama	20	80	226	26	9	3
scc_rt_damascus	20	34	41	21	4	3
scc_rt_dash	20	31	39	21	5	4
scc_rt_gmanews	20	135	1,078	38	21	3
scc_rt_gop	20	13	7	13	1	8
scc_rt_http	20	5	6	5	2	17
scc_rt_israel	20	22	12	38	1	0
scc_rt_justinbieber	20	62	442	30	16	6
scc_rt_ksa	20	21	23	21	5	4
scc_rt_lebanon	20	10	5	10	1	11
scc_rt_libya	20	27	26	21	2	1
scc_rt_lolgot	20	273	4,510	57	41	4
scc_rt_mittromney	20	102	108	38	4	0
scc_rt_obama	20	8	4	8	1	13
scc_rt_occupy	20	55	60	21	4	3
scc_rt_occupywallstnyc	20	127	931	36	17	1
scc_rt_oman	20	16	13	16	2	6
scc_rt_onedirection	20	35	368	28	26	18
scc_rt_p2	20	26	15	38	1	0
scc_rt_qatif	20	14	11	14	2	8
scc_rt_saudi	20	28	91	22	7	5
scc_rt_tcot	20	26	18	21	2	1
scc_rt_tlot	20	13	8	13	1	8
scc_rt_uae	20	18	12	18	2	4
scc_rt_voteonedirection	20	7	5	7	2	15
scc_twitter-copen	20	2,623	473,614	602	582	0
sc_ldoor	20	909,537	20,770,807	45	34	9
sc_msdoor	20	404,785	9,378,650	45	34	9
sc_nasasrb	20	54,870	1,311,227	42	35	13
sc_pkustk11	20	87,804	2,565,054	56	47	11
sc_pkustk13	20	94,893	3,260,967	55	41	6
sc_pwtk	20	217,891	5,653,221	46	35	9
sc_shipsec1	20	140,385	1,707,759	41	24	3

sc-shipsec5	20	179,104	2,200,076	44	29	5
soc-brightkite	20	56,739	212,945	70	52	2
soc-delicious	20	536,108	1,365,961	49	33	4
soc-digg	20	770,799	5,907,132	109	236	147
soc-dolphins	20	62	159	38	4	0
soc-douban	20	154,908	327,162	38	15	0
soc-epinions	20	26,588	100,120	46	32	6
socfb-A-anon	20	3,097,165	23,667,394	61	74	33
socfb-B-anon	20	2,937,612	20,959,854	64	63	19
socfb-Berkeley13	20	22,900	852,419	75	64	9
socfb-CMU	20	6,621	249,959	67	69	22
socfb-Duke14	20	9,885	506,437	81	85	24
socfb-Indiana	20	29,732	1,305,757	83	76	13
socfb-MIT	20	6,402	251,230	64	72	28
socfb-OR	20	63,392	816,886	64	52	8
socfb-Penn94	20	41,536	1,362,220	69	62	13
socfb-Stanford3	20	11,586	568,309	77	91	34
socfb-Texas84	20	36,364	1,590,651	94	81	7
socfb-uci-uni	20	58,790,782	92,208,195	38	16	0
socfb-UCLA	20	20,453	747,604	74	65	11
socfb-UConn	20	17,206	604,867	77	65	8
socfb-UCSB37	20	14,917	482,215	83	65	2
socfb-UF	20	35,111	1,465,654	99	83	4
socfb-Uillinois	20	30,795	1,264,421	96	85	9
socfb-Wisconsin87	20	23,831	835,946	73	60	7
soc-flixster	20	2,523,386	7,918,801	81	68	7
soc-FourSquare	20	639,014	3,214,986	65	63	18
soc-gowalla	20	196,591	950,327	56	51	15
soc-karate	20	34	78	22	4	2
soc-lastfm	20	1,191,805	4,519,330	56	70	34
soc-livejournal	20	4,033,137	27,933,062	222	213	11
soc-LiveMocha	20	104,103	2,193,083	60	92	52
soc-orkut	20	2,997,166	106,349,209	111	230	139
soc-pokec	20	1,632,803	22,301,964	55	47	12
soc-slashdot	20	70,068	358,647	68	53	5
soc-twitter-follows	20	404,719	713,319	38	28	10
soc-wiki-Vote	20	889	2,914	38	9	0
soc-youtube	20	495,957	1,936,748	50	49	19
tech-as-caida2007	20	26,475	53,381	42	22	0
tech-as-skitter	20	1,694,616	11,094,209	104	111	27
tech-internet-as	20	40,164	85,123	43	23	0
tech-p2p-gnutella	20	62,561	147,878	38	6	0
tech-RL-caida	20	190,914	607,610	48	32	4
tech-routers-rf	20	2,113	6,632	38	15	0
tech-WHOIS	20	7,476	56,943	104	88	4
web-arabic-2005	20	163,598	1,747,269	102	101	19

web-BerkStan	20	12,305	19,500	38	28	10
web-edu	20	3,031	6,474	38	29	11
web-google	20	1,299	2,773	35	17	2
web-indochina-2004	20	11,358	47,606	50	49	19
web-it-2004	20	509,338	7,178,413	432	431	19
web-polblogs	20	643	2,280	31	12	1
web-sk-2005	20	121,422	334,419	84	81	17
web-spam	20	4,767	37,375	53	35	2
web-uk-2005	20	129,632	11,744,049	500	499	19
web-webbase-2001	20	16,062	25,593	38	32	14

2.2 10-DIMACS graphs

Table 30: 10th-DIMACS graph information for k=2

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
144	2	144,649	1,074,393	8	9	3
598a	2	110,971	741,934	7	8	3
adaptive	2	6,815,744	13,624,320	4	2	0
auto	2	448,695	3,314,611	8	9	3
bio-celegansneural	2	297	2,148	10	10	2
bio-pdb1HYS	2	36,417	2,154,174	60	74	16
c-62ghs	2	41,731	258,806	4	60	58
c-66b	2	49,989	224,509	4	42	40
channel-500x100x100-b050	2	4,802,000	42,681,372	8	9	3
chesapeake	2	39	170	7	6	1
citationCiteseer	2	268,495	1,156,646	13	15	4
cnr-2000	2	325,557	2,738,969	85	83	0
coAuthorsCiteseer	2	227,320	814,134	87	86	1
connectus	2	394,707	1,127,491	12	37	27
consph	2	79,679	2,963,573	24	41	19
cop20k_A	2	99,843	1,262,244	14	18	6
co-papers-citeseer	2	434,102	16,036,720	845	844	1
co-papers-dblp	2	540,486	15,245,729	337	336	1
cs4	2	22,499	43,858	4	3	1
cti	2	16,840	48,232	4	4	2
delaunay_n10	2	1,024	3,056	5	4	1
delaunay_n11	2	2,048	6,127	5	4	1
delaunay_n12	2	4,096	12,264	5	4	1
delaunay_n13	2	8,192	24,547	5	4	1
delaunay_n14	2	16,384	49,122	6	4	0
delaunay_n15	2	32,768	98,274	5	4	1

delaunay_n16	2	65,536	196,575	5	4	1
delaunay_n17	2	131,072	393,176	6	4	0
delaunay_n18	2	262,144	786,396	6	4	0
delaunay_n19	2	524,288	1,572,823	5	4	1
delaunay_n20	2	1,048,576	3,145,686	5	4	1
delaunay_n21	2	2,097,152	6,291,408	6	4	0
delaunay_n22	2	4,194,304	12,582,869	6	4	0
delaunay_n23	2	8,388,608	25,165,784	6	4	0
delaunay_n24	2	16,777,216	50,331,601	6	4	0
email-enron	2	69,017	254,449	36	52	18
fe_rotor	2	99,617	662,431	7	8	3
fe-4elt2	2	11,143	32,818	5	4	1
fe-body	2	44,775	163,734	8	6	0
fe-ocean	2	143,437	409,593	4	4	2
fe-sphere	2	16,386	49,152	5	5	2
fe-tooth	2	78,136	452,591	7	7	2
hugebubbles-00020	2	21,198,119	31,790,179	4	2	0
hugetrace-00000	2	4,588,484	6,879,133	4	2	0
hugetrace-00010	2	12,057,441	18,082,179	4	2	0
hugetrace-00020	2	16,002,413	23,998,813	4	2	0
hugetric-00000	2	5,824,554	8,733,523	4	2	0
hugetric-00010	2	6,592,765	9,885,854	4	2	0
hugetric-00020	2	7,122,792	10,680,777	4	2	0
inf-asia_osm	2	11,950,757	12,711,603	5	3	0
inf-belgium_osm	2	1,441,295	1,549,970	5	3	0
inf-europe_osm	2	50,912,018	54,054,660	5	3	0
inf-germany_osm	2	11,548,845	12,369,181	5	3	0
inf-great-britain_osm	2	7,733,822	8,156,517	5	3	0
inf-italy_osm	2	6,686,493	7,013,978	5	3	0
inf-luxembourg_osm	2	114,599	119,666	4	2	0
inf-netherlands_osm	2	2,216,688	2,441,238	5	3	0
inf-road_central	2	14,081,816	16,933,413	5	3	0
inf-road_usa	2	23,947,347	28,854,312	5	3	0
m14b	2	214,765	1,679,018	8	9	3
packing-500x100x100-b050	2	2,145,839	17,488,243	8	9	3
polblogs	2	1,224	16,715	23	36	15
rgg_n_2_15_s0	2	32,766	160,240	14	12	0
rgg_n_2_16_s0	2	65,532	342,127	15	13	0
rgg_n_2_17_s0	2	131,070	728,753	16	14	0
rgg_n_2_18_s0	2	262,141	1,547,283	16	15	1
rgg_n_2_19_s0	2	524,284	3,269,766	19	17	0
rgg_n_2_20_s0	2	1,048,575	6,891,620	18	17	1
rgg_n_2_21_s0	2	2,097,148	14,487,995	19	18	1
rgg_n_2_22_s0	2	4,194,301	30,359,198	20	19	1
rgg_n_2_23_s0	2	8,388,607	63,501,393	22	20	0
rgg_n_2_24_s0	2	16,777,215	132,557,200	22	20	0

soc-Epinions1	2	75,879	405,740	28	67	41
t60k	2	60,005	89,440	4	2	0
tech-caidaRouterLevel	2	192,244	609,066	20	32	14
venturiLevel3	2	4,026,819	8,054,237	4	3	1
wing	2	62,032	121,544	4	3	1
wing_nodal	2	10,937	75,488	7	8	3

Table 31: 10th-DIMACS graph information for k=5

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
144	5	144,649	1,074,393	12	9	2
598a	5	110,971	741,934	11	8	2
adaptive	5	6,815,744	13,624,320	8	2	0
auto	5	448,695	3,314,611	12	9	2
bio-celegansneural	5	297	2,148	13	10	2
bio-pdb1HYS	5	36,417	2,154,174	63	74	16
c-62ghs	5	41,731	258,806	10	60	55
c-66b	5	49,989	224,509	10	42	37
channel-500x100x100-b050	5	4,802,000	42,681,372	10	9	4
chesapeake	5	39	170	11	6	0
citationCiteseer	5	268,495	1,156,646	18	15	2
cnr-2000	5	325,557	2,738,969	86	83	2
coAuthorsCiteseer	5	227,320	814,134	87	86	4
connectus	5	394,707	1,127,491	19	37	23
consph	5	79,679	2,963,573	26	41	20
cop20k_A	5	99,843	1,262,244	17	18	6
co-papers-citeseer	5	434,102	16,036,720	845	844	4
co-papers-dblp	5	540,486	15,245,729	337	336	4
cs4	5	22,499	43,858	8	3	0
cti	5	16,840	48,232	8	4	1
delaunay_n10	5	1,024	3,056	8	4	1
delaunay_n11	5	2,048	6,127	8	4	1
delaunay_n12	5	4,096	12,264	8	4	1
delaunay_n13	5	8,192	24,547	8	4	1
delaunay_n14	5	16,384	49,122	8	4	1
delaunay_n15	5	32,768	98,274	9	4	0
delaunay_n16	5	65,536	196,575	8	4	1
delaunay_n17	5	131,072	393,176	8	4	1
delaunay_n18	5	262,144	786,396	8	4	1
delaunay_n19	5	524,288	1,572,823	9	4	0
delaunay_n20	5	1,048,576	3,145,686	9	4	0
delaunay_n21	5	2,097,152	6,291,408	9	4	0

delaunay_n22	5	4,194,304	12,582,869	9	4	0
delaunay_n23	5	8,388,608	25,165,784	9	4	0
delaunay_n24	5	16,777,216	50,331,601	9	4	0
email-enron	5	69,017	254,449	44	52	13
fe_rotor	5	99,617	662,431	11	8	2
fe-4elt2	5	11,143	32,818	8	4	1
fe-body	5	44,775	163,734	10	6	1
fe-ocean	5	143,437	409,593	8	4	1
fe-sphere	5	16,386	49,152	8	5	2
fe-tooth	5	78,136	452,591	10	7	2
hugebubbles-00020	5	21,198,119	31,790,179	8	2	0
hugetrace-00000	5	4,588,484	6,879,133	8	2	0
hugetrace-00010	5	12,057,441	18,082,179	8	2	0
hugetrace-00020	5	16,002,413	23,998,813	8	2	0
hugetric-00000	5	5,824,554	8,733,523	8	2	0
hugetric-00010	5	6,592,765	9,885,854	8	2	0
hugetric-00020	5	7,122,792	10,680,777	8	2	0
inf-asia_osm	5	11,950,757	12,711,603	8	3	0
inf-belgium_osm	5	1,441,295	1,549,970	8	3	0
inf-europe_osm	5	50,912,018	54,054,660	8	3	0
inf-germany_osm	5	11,548,845	12,369,181	8	3	0
inf-great-britain_osm	5	7,733,822	8,156,517	8	3	0
inf-italy_osm	5	6,686,493	7,013,978	8	3	0
inf-luxembourg_osm	5	114,599	119,666	8	2	0
inf-netherlands_osm	5	2,216,688	2,441,238	8	3	0
inf-road_central	5	14,081,816	16,933,413	8	3	0
inf-road_usa	5	23,947,347	28,854,312	8	3	0
m14b	5	214,765	1,679,018	12	9	2
packing-500x100x100-b050	5	2,145,839	17,488,243	10	9	4
polblogs	5	1,224	16,715	32	36	9
rgg_n_2_15_s0	5	32,766	160,240	16	12	1
rgg_n_2_16_s0	5	65,532	342,127	18	13	0
rgg_n_2_17_s0	5	131,070	728,753	18	14	1
rgg_n_2_18_s0	5	262,141	1,547,283	20	15	0
rgg_n_2_19_s0	5	524,284	3,269,766	21	17	1
rgg_n_2_20_s0	5	1,048,575	6,891,620	20	17	2
rgg_n_2_21_s0	5	2,097,148	14,487,995	22	18	1
rgg_n_2_22_s0	5	4,194,301	30,359,198	23	19	1
rgg_n_2_23_s0	5	8,388,607	63,501,393	24	20	1
rgg_n_2_24_s0	5	16,777,215	132,557,200	25	20	0
soc-Epinions1	5	75,879	405,740	39	67	33
t60k	5	60,005	89,440	8	2	0
tech-caidaRouterLevel	5	192,244	609,066	26	32	11
venturiLevel3	5	4,026,819	8,054,237	8	3	0
wing	5	62,032	121,544	8	3	0

wing_nodal	5	10,937	75,488	10	8	3
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Table 32: 10th-DIMACS graph information for k=10

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
144	10	144,649	1,074,393	18	9	1
598a	10	110,971	741,934	18	8	0
adaptive	10	6,815,744	13,624,320	12	2	0
auto	10	448,695	3,314,611	18	9	1
bio-celegansneural	10	297	2,148	19	10	1
bio-pdb1HYS	10	36,417	2,154,174	69	74	15
c-62ghs	10	41,731	258,806	20	60	50
c-66b	10	49,989	224,509	20	42	32
channel-500x100x100-b050	10	4,802,000	42,681,372	18	9	1
chesapeake	10	39	170	18	6	0
citationCiteseer	10	268,495	1,156,646	23	15	2
cnr-2000	10	325,557	2,738,969	89	83	4
coAuthorsCiteseer	10	227,320	814,134	87	86	9
connectus	10	394,707	1,127,491	26	37	21
consph	10	79,679	2,963,573	33	41	18
cop20k_A	10	99,843	1,262,244	23	18	5
co-papers-citeseer	10	434,102	16,036,720	845	844	9
co-papers-dblp	10	540,486	15,245,729	337	336	9
cs4	10	22,499	43,858	18	3	0
cti	10	16,840	48,232	18	4	0
delaunay_n10	10	1,024	3,056	18	4	0
delaunay_n11	10	2,048	6,127	18	4	0
delaunay_n12	10	4,096	12,264	18	4	0
delaunay_n13	10	8,192	24,547	18	4	0
delaunay_n14	10	16,384	49,122	18	4	0
delaunay_n15	10	32,768	98,274	18	4	0
delaunay_n16	10	65,536	196,575	18	4	0
delaunay_n17	10	131,072	393,176	18	4	0
delaunay_n18	10	262,144	786,396	18	4	0
delaunay_n19	10	524,288	1,572,823	18	4	0
delaunay_n20	10	1,048,576	3,145,686	18	4	0
delaunay_n21	10	2,097,152	6,291,408	18	4	0
delaunay_n22	10	4,194,304	12,582,869	18	4	0
delaunay_n23	10	8,388,608	25,165,784	18	4	0
delaunay_n24	10	16,777,216	50,331,601	18	4	0
email-enron	10	69,017	254,449	51	52	11
fe_rotor	10	99,617	662,431	18	8	0

fe-4elt2	10	11,143	32,818	18	4	0
fe-body	10	44,775	163,734	18	6	0
fe-ocean	10	143,437	409,593	18	4	0
fe-sphere	10	16,386	49,152	18	5	0
fe-tooth	10	78,136	452,591	18	7	0
hugebubbles-00020	10	21,198,119	31,790,179	12	2	0
hugetrace-00000	10	4,588,484	6,879,133	18	2	0
hugetrace-00010	10	12,057,441	18,082,179	12	2	0
hugetrace-00020	10	16,002,413	23,998,813	18	2	0
hugetric-00000	10	5,824,554	8,733,523	12	2	0
hugetric-00010	10	6,592,765	9,885,854	12	2	0
hugetric-00020	10	7,122,792	10,680,777	18	2	0
inf-asia_osm	10	11,950,757	12,711,603	18	3	0
inf-belgium_osm	10	1,441,295	1,549,970	18	3	0
inf-europe_osm	10	50,912,018	54,054,660	18	3	0
inf-germany_osm	10	11,548,845	12,369,181	13	3	0
inf-great-britain_osm	10	7,733,822	8,156,517	18	3	0
inf-italy_osm	10	6,686,493	7,013,978	18	3	0
inf-luxembourg_osm	10	114,599	119,666	18	2	0
inf-netherlands_osm	10	2,216,688	2,441,238	12	3	1
inf-road_central	10	14,081,816	16,933,413	18	3	0
inf-road_usa	10	23,947,347	28,854,312	18	3	0
m14b	10	214,765	1,679,018	18	9	1
packing-500x100x100-b050	10	2,145,839	17,488,243	18	9	1
polblogs	10	1,224	16,715	41	36	5
rgg_n_2_15_s0	10	32,766	160,240	20	12	2
rgg_n_2_16_s0	10	65,532	342,127	22	13	1
rgg_n_2_17_s0	10	131,070	728,753	22	14	2
rgg_n_2_18_s0	10	262,141	1,547,283	25	15	0
rgg_n_2_19_s0	10	524,284	3,269,766	23	17	4
rgg_n_2_20_s0	10	1,048,575	6,891,620	26	17	1
rgg_n_2_21_s0	10	2,097,148	14,487,995	25	18	3
rgg_n_2_22_s0	10	4,194,301	30,359,198	27	19	2
rgg_n_2_23_s0	10	8,388,607	63,501,393	28	20	2
rgg_n_2_24_s0	10	16,777,215	132,557,200	29	20	1
soc-Epinions1	10	75,879	405,740	49	67	28
t60k	10	60,005	89,440	18	2	0
tech-caidaRouterLevel	10	192,244	609,066	35	32	7
venturiLevel3	10	4,026,819	8,054,237	18	3	0
wing	10	62,032	121,544	18	3	0
wing_nodal	10	10,937	75,488	18	8	0

Table 33: 10th-DIMACS graph information for k=15

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
144	15	144,649	1,074,393	28	9	0
598a	15	110,971	741,934	28	8	0
adaptive	15	6,815,744	13,624,320	28	2	0
auto	15	448,695	3,314,611	28	9	0
bio-celegansneural	15	297	2,148	28	10	0
bio-pdb1HYS	15	36,417	2,154,174	74	74	15
c-62ghs	15	41,731	258,806	30	60	45
c-66b	15	49,989	224,509	30	42	27
channel-500x100x100-b050	15	4,802,000	42,681,372	28	9	0
chesapeake	15	39	170	21	6	0
citationCiteseer	15	268,495	1,156,646	29	15	1
cnr-2000	15	325,557	2,738,969	89	83	9
coAuthorsCiteseer	15	227,320	814,134	87	86	14
connectus	15	394,707	1,127,491	34	37	18
consph	15	79,679	2,963,573	42	41	14
cop20k_A	15	99,843	1,262,244	28	18	5
co-papers-citeseer	15	434,102	16,036,720	845	844	14
co-papers-dblp	15	540,486	15,245,729	337	336	14
cs4	15	22,499	43,858	28	3	0
cti	15	16,840	48,232	28	4	0
delaunay_n10	15	1,024	3,056	28	4	0
delaunay_n11	15	2,048	6,127	28	4	0
delaunay_n12	15	4,096	12,264	28	4	0
delaunay_n13	15	8,192	24,547	28	4	0
delaunay_n14	15	16,384	49,122	28	4	0
delaunay_n15	15	32,768	98,274	28	4	0
delaunay_n16	15	65,536	196,575	28	4	0
delaunay_n17	15	131,072	393,176	28	4	0
delaunay_n18	15	262,144	786,396	28	4	0
delaunay_n19	15	524,288	1,572,823	28	4	0
delaunay_n20	15	1,048,576	3,145,686	28	4	0
delaunay_n21	15	2,097,152	6,291,408	28	4	0
delaunay_n22	15	4,194,304	12,582,869	28	4	0
delaunay_n23	15	8,388,608	25,165,784	28	4	0
delaunay_n24	15	16,777,216	50,331,601	28	4	0
email-enron	15	69,017	254,449	59	52	8
fe_rotor	15	99,617	662,431	28	8	0
fe-4elt2	15	11,143	32,818	28	4	0
fe-body	15	44,775	163,734	28	6	0
fe-ocean	15	143,437	409,593	28	4	0
fe-sphere	15	16,386	49,152	28	5	0
fe-tooth	15	78,136	452,591	28	7	0

hugebubbles-00020	15	21,198,119	31,790,179	28	2	0
hugetrace-00000	15	4,588,484	6,879,133	28	2	0
hugetrace-00010	15	12,057,441	18,082,179	28	2	0
hugetrace-00020	15	16,002,413	23,998,813	28	2	0
hugetric-00000	15	5,824,554	8,733,523	28	2	0
hugetric-00010	15	6,592,765	9,885,854	28	2	0
hugetric-00020	15	7,122,792	10,680,777	17	2	0
inf-asia_osm	15	11,950,757	12,711,603	18	3	0
inf-belgium_osm	15	1,441,295	1,549,970	28	3	0
inf-europe_osm	15	50,912,018	54,054,660	18	3	0
inf-germany_osm	15	11,548,845	12,369,181	18	3	0
inf-great-britain_osm	15	7,733,822	8,156,517	28	3	0
inf-italy_osm	15	6,686,493	7,013,978	28	3	0
inf-luxembourg_osm	15	114,599	119,666	28	2	0
inf-netherlands_osm	15	2,216,688	2,441,238	28	3	0
inf-road_central	15	14,081,816	16,933,413	28	3	0
inf-road_usa	15	23,947,347	28,854,312	28	3	0
m14b	15	214,765	1,679,018	28	9	0
packing-500x100x100-b050	15	2,145,839	17,488,243	28	9	0
polblogs	15	1,224	16,715	50	36	1
rgg_n_2_15_s0	15	32,766	160,240	28	12	0
rgg_n_2_16_s0	15	65,532	342,127	28	13	0
rgg_n_2_17_s0	15	131,070	728,753	28	14	1
rgg_n_2_18_s0	15	262,141	1,547,283	28	15	2
rgg_n_2_19_s0	15	524,284	3,269,766	28	17	4
rgg_n_2_20_s0	15	1,048,575	6,891,620	32	17	0
rgg_n_2_21_s0	15	2,097,148	14,487,995	30	18	3
rgg_n_2_22_s0	15	4,194,301	30,359,198	31	19	3
rgg_n_2_23_s0	15	8,388,607	63,501,393	33	20	2
rgg_n_2_24_s0	15	16,777,215	132,557,200	33	20	2
soc-Epinions1	15	75,879	405,740	58	67	24
t60k	15	60,005	89,440	28	2	0
tech-caidaRouterLevel	15	192,244	609,066	41	32	6
venturiLevel3	15	4,026,819	8,054,237	18	3	0
wing	15	62,032	121,544	28	3	0
wing_nodal	15	10,937	75,488	28	8	0

Table 34: 10th-DIMACS graph information for k=20

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
144	20	144,649	1,074,393	38	9	0
598a	20	110,971	741,934	38	8	0

adaptive	20	6,815,744	13,624,320	22	2	0
auto	20	448,695	3,314,611	38	9	0
bio-celegansneural	20	297	2,148	38	10	0
bio-pdb1HYS	20	36,417	2,154,174	79	74	15
c-62ghs	20	41,731	258,806	40	60	40
c-66b	20	49,989	224,509	40	42	22
channel-500x100x100-b050	20	4,802,000	42,681,372	38	9	0
chesapeake	20	39	170	26	6	0
citationCiteseer	20	268,495	1,156,646	38	15	0
cnr-2000	20	325,557	2,738,969	93	83	10
coAuthorsCiteseer	20	227,320	814,134	87	86	19
consph	20	79,679	2,963,573	45	41	16
cop20k_A	20	99,843	1,262,244	38	18	0
co-papers-citeseer	20	434,102	16,036,720	845	844	19
co-papers-dblp	20	540,486	15,245,729	337	336	19
cs4	20	22,499	43,858	38	3	0
cti	20	16,840	48,232	38	4	0
delaunay_n10	20	1,024	3,056	38	4	0
delaunay_n11	20	2,048	6,127	38	4	0
delaunay_n12	20	4,096	12,264	38	4	0
delaunay_n13	20	8,192	24,547	38	4	0
delaunay_n14	20	16,384	49,122	38	4	0
delaunay_n15	20	32,768	98,274	38	4	0
delaunay_n16	20	65,536	196,575	38	4	0
delaunay_n17	20	131,072	393,176	38	4	0
delaunay_n18	20	262,144	786,396	38	4	0
delaunay_n19	20	524,288	1,572,823	38	4	0
delaunay_n20	20	1,048,576	3,145,686	38	4	0
delaunay_n21	20	2,097,152	6,291,408	38	4	0
delaunay_n22	20	4,194,304	12,582,869	38	4	0
delaunay_n23	20	8,388,608	25,165,784	38	4	0
delaunay_n24	20	16,777,216	50,331,601	38	4	0
email-enron	20	69,017	254,449	66	52	6
fe_rotor	20	99,617	662,431	38	8	0
fe-4elt2	20	11,143	32,818	38	4	0
fe-body	20	44,775	163,734	38	6	0
fe-ocean	20	143,437	409,593	38	4	0
fe-sphere	20	16,386	49,152	38	5	0
fe-tooth	20	78,136	452,591	38	7	0
hugebubbles-00020	20	21,198,119	31,790,179	38	2	0
hugetrace-00000	20	4,588,484	6,879,133	22	2	0
hugetrace-00010	20	12,057,441	18,082,179	38	2	0
hugetrace-00020	20	16,002,413	23,998,813	22	2	0
hugetric-00000	20	5,824,554	8,733,523	38	2	0
hugetric-00010	20	6,592,765	9,885,854	38	2	0
hugetric-00020	20	7,122,792	10,680,777	38	2	0

inf-asia_osm	20	11,950,757	12,711,603	38	3	0
inf-belgium_osm	20	1,441,295	1,549,970	38	3	0
inf-europe_osm	20	50,912,018	54,054,660	38	3	0
inf-germany_osm	20	11,548,845	12,369,181	38	3	0
inf-great-britain_osm	20	7,733,822	8,156,517	38	3	0
inf-italy_osm	20	6,686,493	7,013,978	38	3	0
inf-luxembourg_osm	20	114,599	119,666	38	2	0
inf-netherlands_osm	20	2,216,688	2,441,238	38	3	0
inf-road_central	20	14,081,816	16,933,413	38	3	0
inf-road_usa	20	23,947,347	28,854,312	38	3	0
m14b	20	214,765	1,679,018	38	9	0
packing-500x100x100-b050	20	2,145,839	17,488,243	38	9	0
polblogs	20	1,224	16,715	55	36	1
rgg_n_2_15_s0	20	32,766	160,240	38	12	0
rgg_n_2_16_s0	20	65,532	342,127	38	13	0
rgg_n_2_17_s0	20	131,070	728,753	34	14	0
rgg_n_2_18_s0	20	262,141	1,547,283	38	15	0
rgg_n_2_19_s0	20	524,284	3,269,766	36	17	1
rgg_n_2_20_s0	20	1,048,575	6,891,620	38	17	0
rgg_n_2_21_s0	20	2,097,148	14,487,995	37	18	1
rgg_n_2_22_s0	20	4,194,301	30,359,198	38	19	1
rgg_n_2_23_s0	20	8,388,607	63,501,393	38	20	2
rgg_n_2_24_s0	20	16,777,215	132,557,200	38	20	2
soc-Epinions1	20	75,879	405,740	65	67	22
t60k	20	60,005	89,440	22	2	0
tech-caidaRouterLevel	20	192,244	609,066	48	32	4
venturiLevel3	20	4,026,819	8,054,237	38	3	0
wing	20	62,032	121,544	38	3	0
wing_nodal	20	10,937	75,488	38	8	0

2.3 2nd-DIMACS graphs

Table 35: 2nd-DIMACS graph information for k=2

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
brock200_2	2	200	9,876	13	84	73
brock200_3	2	200	12,048	17	105	90
c-fat200-1	2	200	1,534	12	14	4
c-fat200-2	2	200	3,235	24	32	10
c-fat200-5	2	200	8,473	58	83	27
c-fat500-1	2	500	4,459	14	17	5
c-fat500-10	2	500	46,627	126	185	61

c-fat500-2	2	500	9,139	26	35	11
c-fat500-5	2	500	23,191	64	92	30
hamming6-2	2	64	1,824	32	57	27
hamming6-4	2	64	704	6	22	18
johnson8-2-4	2	28	210	5	15	12
johnson8-4-4	2	70	1,855	14	53	41
keller4	2	171	9,435	15	102	89
MANN_a9	2	45	918	26	40	16
p_hat300-1	2	300	10,933	10	49	41
p_hat300-2	2	300	21,928	30	98	70
p_hat500-1	2	500	31,569	12	86	76
san200_0.9_1	2	200	17,910	90	162	74

Table 36: 2nd-DIMACS graph information for k=5

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
c-fat200-1	5	200	1,534	14	14	5
c-fat200-2	5	200	3,235	24	32	13
c-fat200-5	5	200	8,473	58	83	30
c-fat500-1	5	500	4,459	15	17	7
c-fat500-10	5	500	46,627	126	185	64
c-fat500-2	5	500	9,139	26	35	14
c-fat500-5	5	500	23,191	64	92	33
hamming6-2	5	64	1,824	48	57	14
hamming6-4	5	64	704	12	22	15
johnson8-2-4	5	28	210	12	15	8
MANN_a27	5	378	70,551	351	364	18
MANN_a45	5	1,035	533,115	990	1012	27
MANN_a9	5	45	918	45	40	0
p_hat300-1	5	300	10,933	16	49	38
p_hat300-2	5	300	21,928	46	98	57
san200_0.9_1	5	200	17,910	125	162	42

Table 37: 2nd-DIMACS graph information for k=10

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
c-fat200-1	10	200	1,534	18	14	6
c-fat200-2	10	200	3,235	30	32	12

c-fat200-5	10	200	8,473	58	83	35
c-fat500-1	10	500	4,459	21	17	6
c-fat500-10	10	500	46,627	126	185	69
c-fat500-2	10	500	9,139	31	35	14
c-fat500-5	10	500	23,191	64	92	38
hamming6-2	10	64	1,824	64	57	3
hamming6-4	10	64	704	20	22	12
hamming8-2	10	256	31,616	256	247	1
johnson8-2-4	10	28	210	21	15	4
MANN_a27	10	378	70,551	351	364	23
MANN_a45	10	1,035	533,115	990	1012	32
MANN_a9	10	45	918	45	40	5

Table 38: 2nd-DIMACS graph information for k=15

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
c-fat200-1	15	200	1,534	28	14	1
c-fat200-2	15	200	3,235	35	32	12
c-fat200-5	15	200	8,473	58	83	40
c-fat500-1	15	500	4,459	28	17	4
c-fat500-10	15	500	46,627	126	185	74
c-fat500-2	15	500	9,139	39	35	11
c-fat500-5	15	500	23,191	64	92	43
hamming10-2	15	1,024	518,656	1024	1013	4
hamming6-2	15	64	1,824	64	57	8
hamming6-4	15	64	704	30	22	7
hamming8-2	15	256	31,616	256	247	6
johnson8-2-4	15	28	210	28	15	2
johnson8-4-4	15	70	1,855	60	53	8
MANN_a27	15	378	70,551	378	364	1
MANN_a45	15	1,035	533,115	990	1012	37
MANN_a9	15	45	918	45	40	10

Table 39: 2nd-DIMACS graph information for k=20

graph	K	VtxNum	EdgeNum	MaxKplex	Degeneracy	Gap
C125.9	20	125	6,963	122	102	0
c-fat200-1	20	200	1,534	38	14	0

c-fat200-2	20	200	3,235	38	32	14
c-fat200-5	20	200	8,473	67	83	36
c-fat500-1	20	500	4,459	38	17	0
c-fat500-2	20	500	9,139	39	35	16
hamming10-2	20	1,024	518,656	1024	1013	9
hamming6-2	20	64	1,824	64	57	13
hamming6-4	20	64	704	38	22	4
hamming8-2	20	256	31,616	256	247	11
johnson8-2-4	20	28	210	28	15	7
johnson8-4-4	20	70	1,855	70	53	3
MANN_a27	20	378	70,551	378	364	6
MANN_a9	20	45	918	45	40	15
san200_0.7_2	20	200	13,930	134	122	8
san400_0.7_1	20	400	55,860	200	261	81
san400_0.7_2	20	400	55,860	205	259	74
san400_0.7_3	20	400	55,860	216	253	57

3 The Degeneracy Gap vs the Running Time

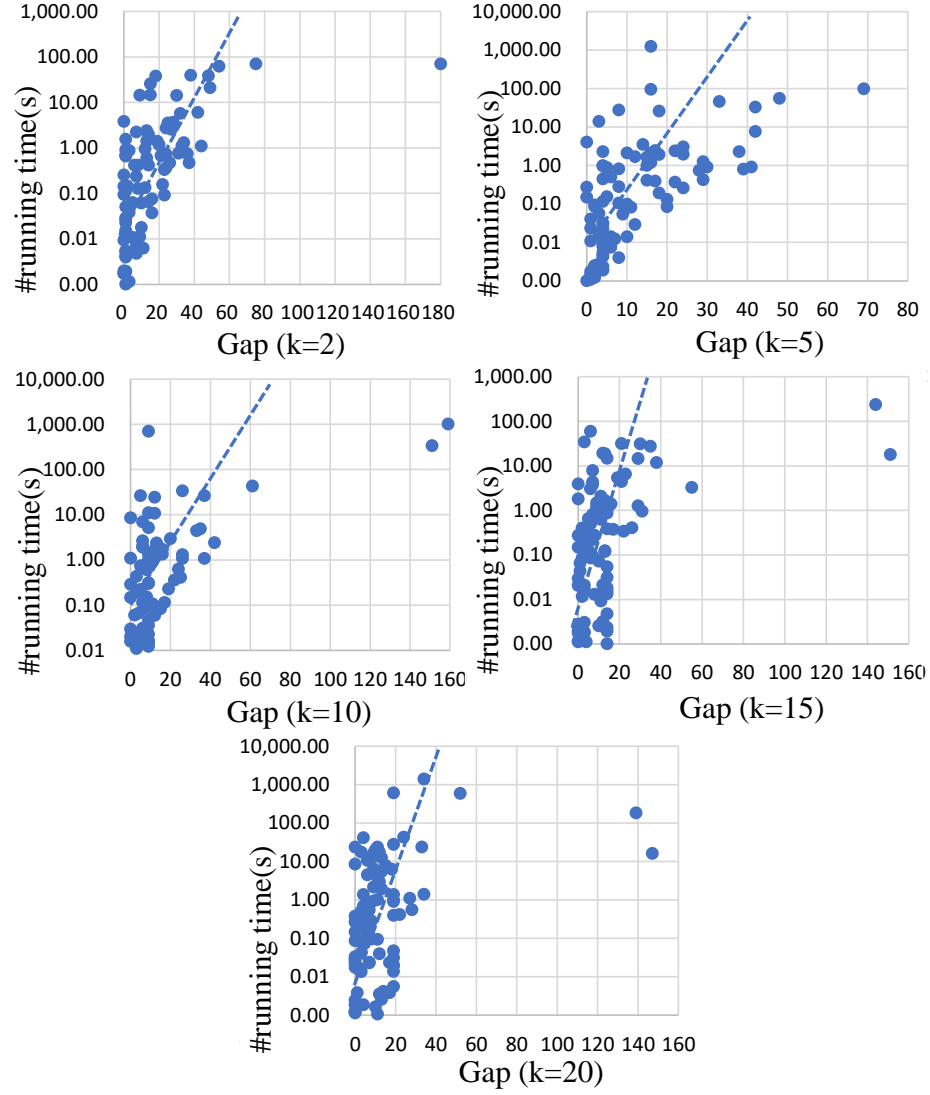


Figure 1: The scatter graphs of all solved instances in Network-Repo with $k=2,5,10,15$ and 20. Horizontal axis represents degeneracy gap of an instance, and vertical axis represents the running time of an instance.