

PCG for Poisson equation, $\tau = 0.06$

multilevel, ('gs', 'a', 'st', 'st'), $\gamma = 1$

m	$\nu = 1$	$\nu = 2$	$\nu = 5$
10	6 op=107129, /n=1071 100-50-14 str=1297, /n=13 $\kappa = 1.05$	5 op=138717, /n=1387 $\kappa = 1.02$	4 op=233153, /n=2332 $\kappa = 1.005$
20	6 op=484856, /n=1212 400-200-51-14 str=5561, /n=13.9 $\kappa = 1.07$	5 op=636731, /n=1592 $\kappa = 1.03$	4 op=1084798, /n=2712 $\kappa = 1.01$
30	6 op=1138521, /n=1265 900-450-119-32-13 str=12995, /n=14.4 $\kappa = 1.06$	5 op=1499701, /n=1666 $\kappa = 1.03$	4 op=2562353, /n=2847 $\kappa = 1.01$
40	7 op=2330221, /n=1456 1600-800-206-53-15 str=23173, /n=14.5 $\kappa = 1.07$	5 op=2681901, /n=1676 $\kappa = 1.03$	5 op=5505957, /n=3441 $\kappa = 1.01$
50	6 op=3222342, /n=1289 2500-1250-324-84-26-17 str=36744, /n=14.7 $\kappa = 1.06$	5 op=4248607, /n=1699 $\kappa = 1.03$	5 op=8727417, /n=3491 $\kappa = 1.01$
60	7 op=5319529, /n=1477 3600-1800-461-119-34-18-13 str=52943, /n=14.7 $\kappa = 1.07$	5 op=6126171, /n=1702 $\kappa = 1.03$	5 op=12584007, /n=3496 $\kappa = 1.01$

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m	$\nu = 1$	$\nu = 2$	$\nu = 5$
10	5 op=85197, /n=852 100-50-14 str=2005, /n=20 $\kappa = 1.02$	4 op=114429, /n=1144 $\kappa = 1.007$	3 op=196072, /n=1961 $\kappa = 1.002$
20	5 op=381911, /n=954.8 400-200-51-14 str=8584, /n=21.5 $\kappa = 1.03$	4 op=521019, /n=1302 $\kappa = 1.01$	4 op=1132936, /n=2832 $\kappa = 1.003$
30	5 op=894202, /n=993.6 900-450-119-32-13 str=20009, /n=22.2 $\kappa = 1.02$	4 op=1223778, /n=1360 $\kappa = 1.01$	4 op=2667643, /n=2964 $\kappa = 1.003$
40	5 op=1598145, /n=998.8 1600-800-206-53-15 str=35667, /n=22.3 $\kappa = 1.03$	5 op=2631408, /n=1644 $\kappa = 1.01$	4 op=4771293, /n=2982 $\kappa = 1.004$
50	5 op=2528438, /n=1011 2500-1250-324-84-26-17 str=56497, /n=22.6 $\kappa = 1.02$	5 op=4165773, /n=1666 $\kappa = 1.01$	4 op=7557527, /n=3023 $\kappa = 1.004$
60	6 op=4265230, /n=1185 3600-1800-461-119-34-18-13 str=81388, /n=22.6 $\kappa = 1.03$	5 op=6008813, /n=1669 $\kappa = 1.01$	4 op=10901958, /n=3028 $\kappa = 1.005$

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m	$\nu = 1$	$\nu = 2$	$\nu = 5$
10	11 op=167073, /n=1670 100-50-14 str=1892, /n=18.9 $\kappa = 1.74$	7 op=171069, /n=1711 $\kappa = 1.22$	4 op=219258, /n=2193 $\kappa = 1.02$
20	13 op=834163, /n=2085 400-200-51-14 str=8179, /n=20.4 $\kappa = 1.96$	9 op=946283, /n=2366 $\kappa = 1.32$	5 op=1199387, /n=2998 $\kappa = 1.03$
30	14 op=2077423, /n=2308 900-450-119-32-13 str=19044, /n=21.2 $\kappa = 2.01$	9 op=2214933, /n=2461 $\kappa = 1.34$	6 op=3299799, /n=3666 $\kappa = 1.04$
40	14 op=3723423, /n=2327 1600-800-206-53-15 str=34278, /n=21.4 $\kappa = 2.03$	10 op=4381433, /n=2738 $\kappa = 1.35$	6 op=5944087, /n=3715 $\kappa = 1.04$
50	14 op=5897948, /n=2359 2500-1250-324-84-26-17 str=54255, /n=21.7 $\kappa = 2.04$	10 op=6949048, /n=2780 $\kappa = 1.35$	6 op=9437844, /n=3775 $\kappa = 1.04$
60	14 op=8515738, /n=2365 3600-1800-461-119-34-18 str=78369, /n=21.8 $\kappa = 2.05$	10 op=10041954, /n=2789 $\kappa = 1.36$	6 op=13648658, /n=3791 $\kappa = 1.04$

PCG for the discontinuous problem, $\tau = 0.06$
 multilevel, ('gs', 'a', 'st', 'st')

m	$\gamma = 1$	$\gamma = 2$
10	6 op=127378, /n=1274 100-50-16-11 str=1485, /n=14.8 $\kappa = 1.1$	4 op=302737, /n=3027 $\kappa = 1.002$
20	7 op=556267, /n=1391 400-200-46-17-10 str=5448, /n=13.6 $\kappa = 1.3$	4 op=1185685, /n=2964 $\kappa = 1.004$
30	8 op=1507599, /n=1675 900-450-122-30-21 str=13311, /n=14.8 $\kappa = 1.26$	4 op=2938191, /n=3265 $\kappa = 1.002$
39	7 op=2344515, /n=1541 1521-762-204-57-31-21-16 str=23115, /n=15.2 $\kappa = 1.21$	4 op=6702483, /n=4407 $\kappa = 1.002$
50	8 op=4197072, /n=1679 2500-1250-324-88-29-21 str=36892, /n=14.8 $\kappa = 1.35$	4 op=8669991, /n=3468 $\kappa = 1.005$
59	8 op=5931550, /n=1704 3481-1741-446-122-41-22-17 str=52033, /n=14.9 $\kappa = 1.35$	4 op=13191036, /n=3789 $\kappa = 1.004$

PCG for the discontinuous problem, $\tau = 0.06$
 multilevel, ('ic', 'a', 'st', 'st')

m	$\gamma = 1$	$\gamma = 2$
10	6 op=114269, /n=1143 100-50-16-11 str=2306, /n=23.1 $\kappa = 1.03$	3 op=211467, /n=2115 $\kappa = 1.001$
20	7 op=510529, /n=1276 400-200-46-17-10 str=8491, /n=21.2 $\kappa = 1.2$	4 op=1061224, /n=2653 $\kappa = 1.003$
30	6 op=1062618, /n=1181 900-450-122-30-21 str=20515, /n=22.8 $\kappa = 1.15$	4 op=2599886, /n=2889 $\kappa = 1.001$
39	7 op=2126318, /n=1398 1521-762-204-57-31-21-16 str=35638, /n=23.4 $\kappa = 1.15$	4 op=5851962, /n=3847 $\kappa = 1.002$
50	7 op=3401485, /n=1361 2500-1250-324-88-29-21 str=56811, /n=22.7 $\kappa = 1.27$	4 op=7689215, /n=3076 $\kappa = 1.004$
59	7 op=4799520, /n=1379 3481-1741-446-122-41-22-17 str=80096, /n=23 $\kappa = 1.25$	4 op=11619184, /n=3338 $\kappa = 1.004$

PCG for the discontinuous problem, $\tau = 0.06$
 multilevel, ('ai', 'a', 'st', 'st')

m	$\gamma = 1$	$\gamma = 2$
10	6 op=151474, /n=1515 100-50-16-11 str=3022, /n=30.2 $\kappa = 1.05$	4 op=319553, /n=3196 $\kappa = 1.002$
20	8 op=940565, /n=2351 400-200-46-17-10 str=13872, /n=34.7 $\kappa = 1.18$	5 op=1930373, /n=4826 $\kappa = 1.02$
30	7 op=2025525, /n=2251 900-450-122-30-21 str=33851, /n=37.6 $\kappa = 1.12$	4 op=4069393, /n=4521 $\kappa = 1.004$
39	7 op=3619203, /n=2379 1521-762-204-57-31-21-16 str=60219, /n=39.6 $\kappa = 1.13$	4 op=8407017, /n=5527 $\kappa = 1.004$
50	7 op=6042413, /n=2417 2500-1250-324-88-29-21 str=100118, /n=40 $\kappa = 1.26$	4 op=12772833, /n=5109 $\kappa = 1.006$
59	7 op=8611390, /n=2474 3481-1741-446-122-41-22-17 str=142531, /n=41 $\kappa = 1.23$	5 op=22832594, /n=6559 $\kappa = 1.005$

1138-bus $\tau = 0.06$

<i>method</i>	
('gs', 'a', 'st', 'st')	51 it op=9102650 1138-472-177-70-43 st=12881
('ic', 'a', 'st', 'st')	47 it op=7507981 1138-472-177-70-43 st=20626
('ch', 'a', 'st', 'st')	29 it op=5191420 1138-472-177-70-43 st=20793
('ch', 'a', 'st', 'st') $\epsilon = 0.01$	17 it op=3580910 1138-472-177-70-43 st=24737
('ai', 'a', 'st', 'st')	70 it op=16219507 1138-472-177-70-43 st=30346
('sa', 'a', 'st', 'st')	33 it op=8325960 1138-472-177-70-43 st=30911

Nos 7 $\tau = 0.1$

<i>method</i>	
('gs', 'a', 'st', 'st')	14 it op=4900287 729-363-263-180-145 st=28130
('ic', 'a', 'st', 'st')	10 it op=3068369 729-363-263-180-145 st=42047
('ch', 'a', 'st', 'st')	11 it op=2720527 729-363-263-180-145 st=34264
('ch', 'a', 'st', 'st') $\epsilon = 0.01$	9 it op=2599113 729-363-263-180-145 st=38824
('ai', 'a', 'st', 'st')	25 it op=6165459 729-363-263-180-145 st=36351
('sa', 'a', 'st', 'st')	21 it op=5191731 729-363-263-180-145 st=36221

Nos 7

<i>method</i>	
IC(0)	42 it op=2237350 st=3402
sa(0.1)	57 it op=3076240 st=3662
IC(0.01)	16 it op=946863 st=4254