results of $t' = 0, U = 4$

April 9, 2015

Abstract

This report contains results of $t' = 0, U = 4$, $T = 0.5, 0.25, 0.125$ which are simulated at fixed $n = 0.3, 0.6, 0.8, 0.875, 1.0$. We present four physical quantities including energy density E, kinetic energy density K, double occupancy density D and chemical potential μ. Three techniques have been used including $G^2\Gamma$-scheme, $[G^{(0)}]^2\Gamma^{(0)}$-scheme and $[G^{(0)}]^2U$-scheme. Extrapolation(in the order N) figures are shown in Section 2,3,4, and final results($N \to \infty$) are shown in Table1, 2, 3.

1 Fitting table

1.1 T=0.5

Table 1: Extrapolation results: $G^2\Gamma$, $[G^{(0)}]^2\Gamma^{(0)}$ and $[G^{(0)}]^2U$ series for $U = 4$, $T = 0.5$

	n	1.0	0.875	0.8	0.6	0.3
E	$G^2\Gamma$	-	-0.910(8)	-0.986(4)	-1.061(2)	-0.7946(3)
	$[G^{(0)}]^2\Gamma^{(0)}$	-0.716(8)	-	-0.986(4)	-	-0.7946(5)
	$[G^{(0)}]^2U$	-0.715(4)	-	-	-	-
K	$G^2\Gamma$	-	-1.253(20)	-1.255(10)	-1.199(5)	-0.8270(8)
	$[G^{(0)}]^2\Gamma^{(0)}$	-1.251(9)	-	-1.265(8)	-	-0.8270(5)
	$[G^{(0)}]^2U$	-1.248(6)	-	-	-	-
D	$G^2\Gamma$	-	0.086(10)	0.067(4)	0.035(1)	0.0080(2)
	$[G^{(0)}]^2\Gamma^{(0)}$	0.134(5)	-	0.069(4)	-	0.0081(2)
	$[G^{(0)}]^2U$	0.133(3)	-	-	-	-
μ	$G^2\Gamma$	-	1.16(6)	0.73(4)	-0.36(2)	-2.043(3)
	$[G^{(0)}]^2\Gamma^{(0)}$	2.0	-	0.74(2)	-	-2.043(2)
	$[G^{(0)}]^2U$	2.0	-	-	-	-

1.2 T=0.25

Table 2: Extrapolation results: $G^2\Gamma$, $[G^{(0)}]^2\Gamma^{(0)}$ and $[G^{(0)}]^2U$ series for $U = 4$, $T = 0.25$

	n	1.0	0.875	0.8	0.6	0.3
E	$G^2\Gamma$	-	-0.989(8)	-1.066(4)	-1.148(2)	-0.8574(7)
	$[G^{(0)}]^2\Gamma^{(0)}$	-0.81(2)	-	-1.068(5)	-	-0.8570(6)
	$[G^{(0)}]^2U$	-0.806(10)	-	-	-	-
K	$G^2\Gamma$	-	-1.358(20)	-1.36(1)	-1.306(4)	-0.8933(10)
	$[G^{(0)}]^2\Gamma^{(0)}$	-1.35(2)	-	-1.37(1)	-	-0.8935(9)
	$[G^{(0)}]^2U$	-1.337(10)	-	-	-	-
n_d	$G^2\Gamma$	-	0.092(8)	0.074(3)	0.039(1)	0.0090(3)
	$[G^{(0)}]^2\Gamma^{(0)}$	0.135(10)	-	0.075(4)	-	0.0091(3)
	$[G^{(0)}]^2U$	0.133(5)	-	-	-	-
μ	$G^2\Gamma$	-	1.18(6)	0.80(4)	-0.22(1)	-1.944(4)
	$[G^{(0)}]^2\Gamma^{(0)}$	2.0	-	0.83(2)	-	-1.944(4)
	$[G^{(0)}]^2U$	2.0	-	-	-	-

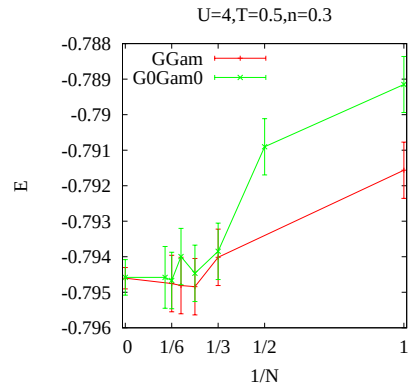
1.3 T=0.125

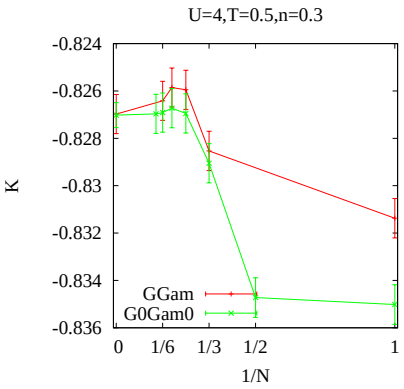
Table 3: Extrapolation results: $G^2\Gamma$, $[G^{(0)}]^2\Gamma^{(0)}$ and $[G^{(0)}]^2U$ series for $U = 4$, $T = 0.125$

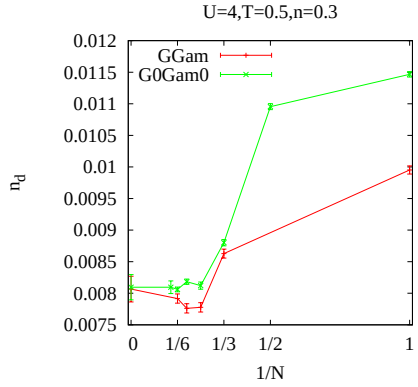
	n	1.0	0.875	0.8	0.6	0.3
E	$G^2\Gamma$	-	-1.015(8)	-1.096(4)	-1.175(3)	-0.8744(9)
	$[G^{(0)}]^2\Gamma^{(0)}$	-	-	-	-	-0.874(1)
	$[G^{(0)}]^2U$	-0.85(2)	-	-	-	-
K	$G^2\Gamma$	-	-1.40(2)	-1.41(1)	-1.339(4)	-0.9112(10)
	$[G^{(0)}]^2\Gamma^{(0)}$	-	-	-	-	-0.9113(10)
	$[G^{(0)}]^2U$	-1.34(3)	-	-	-	-
n_d	$G^2\Gamma$	-	0.097(6)	0.078(3)	0.041(1)	0.0092(3)
	$[G^{(0)}]^2\Gamma^{(0)}$	-	-	-	-	0.0093(3)
	$[G^{(0)}]^2U$	0.12(2)	-	-	-	-
μ	$G^2\Gamma$	-	1.20(7)	0.83(4)	-0.169(8)	-1.924(4)
	$[G^{(0)}]^2\Gamma^{(0)}$	-	-	-	-	-1.923(4)
	$[G^{(0)}]^2U$	2.0	-	-	-	-

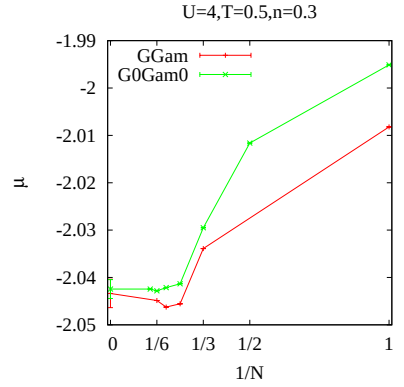
2 $T = 0.5$

2.1 $T = 0.5$, $n = 0.3$

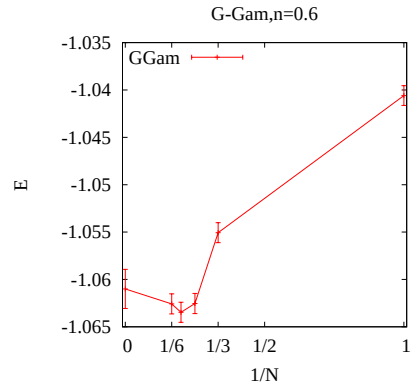


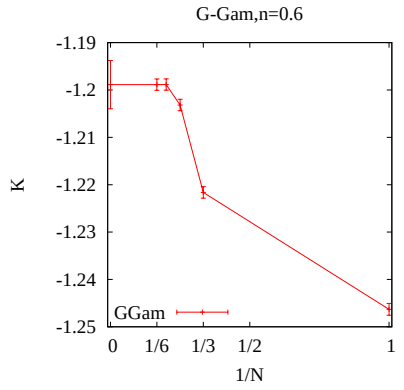


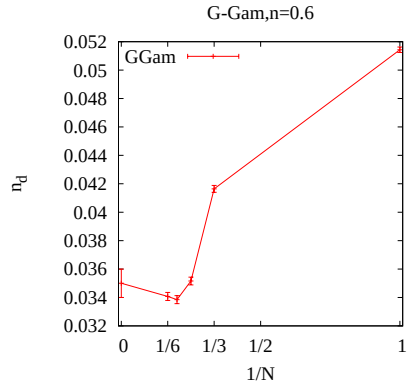


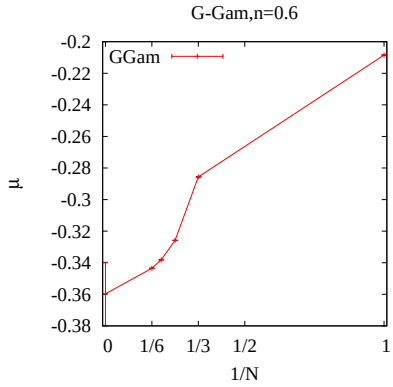


2.2 $T = 0.5$, $n = 0.6$

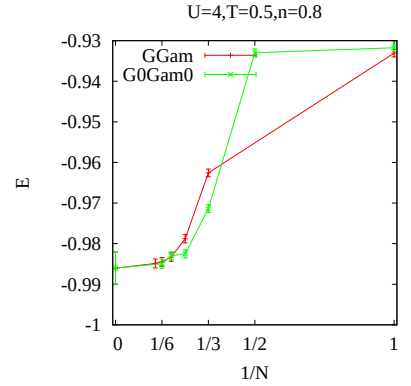


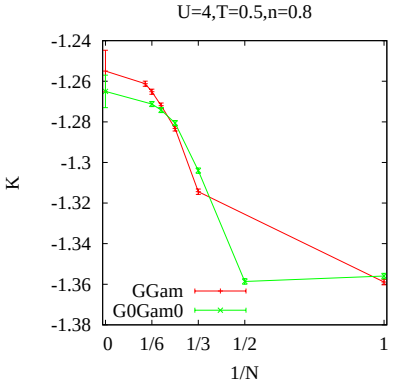


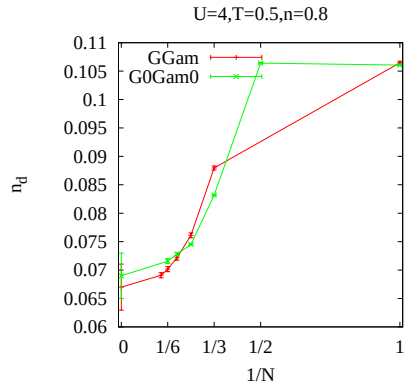

G-Gam,n=0.6
GGam
0.052
0.05
0.048
0.046
0.044
0.042
0.04
0.038
0.036
0.034
0.032
n_d
0
1/6
1/3
1/2
1
1/N

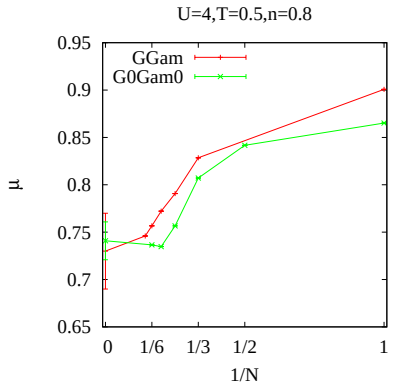

G-Gam,n=0.6
GGam
-0.2
-0.22
-0.24
-0.26
-0.28
-0.3
-0.32
-0.34
-0.36
-0.38
μ
0
1/6
1/3
1/2
1
1/N

2.3 $T = 0.5$, $n = 0.8$

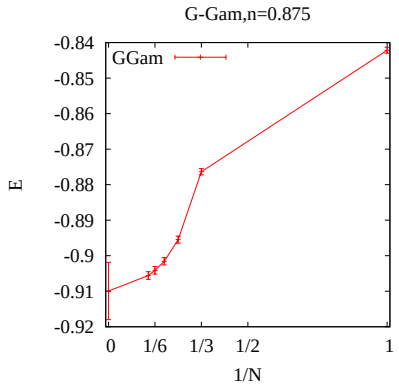

U=4,T=0.5,n=0.8
GGam
G0Gam0
-0.93
-0.94
-0.95
-0.96
-0.97
-0.98
-0.99
-1
E
0
1/6
1/3
1/2
1
1/N

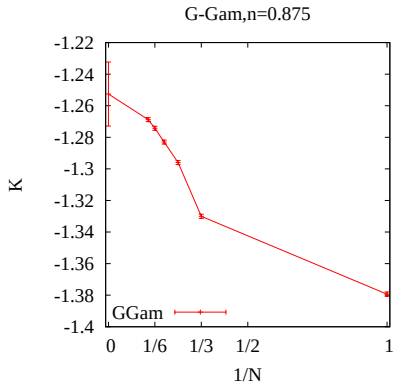

U=4,T=0.5,n=0.8
GGam
G0Gam0
-1.24
-1.26
-1.28
-1.3
-1.32
-1.34
-1.36
-1.38
K
0
1/6
1/3
1/2
1
1/N

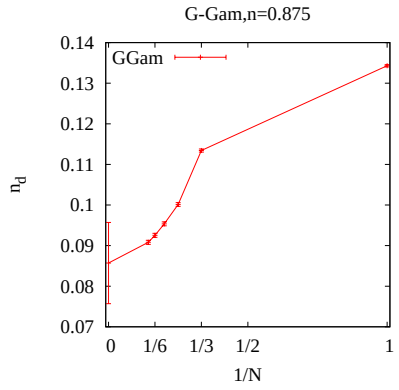

U=4,T=0.5,n=0.8
GGam
G0Gam0
0.11
0.105
0.1
0.095
0.09
0.085
0.08
0.075
0.07
0.065
0.06
n_d
0
1/6
1/3
1/2
1
1/N

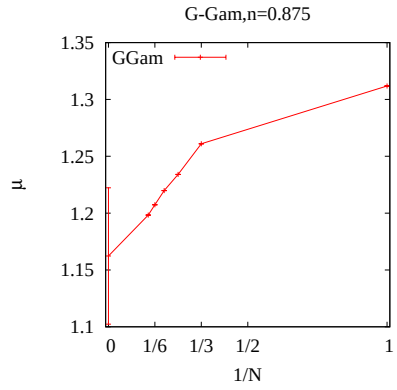

U=4,T=0.5,n=0.8
GGam
G0Gam0
0.95
0.9
0.85
0.8
0.75
0.7
0.65
μ
0
1/6
1/3
1/2
1
1/N

2.4 $T = 0.5,\ n = 0.875$

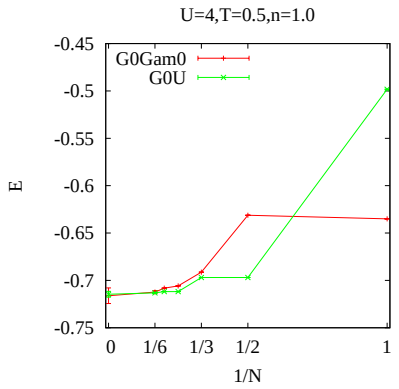


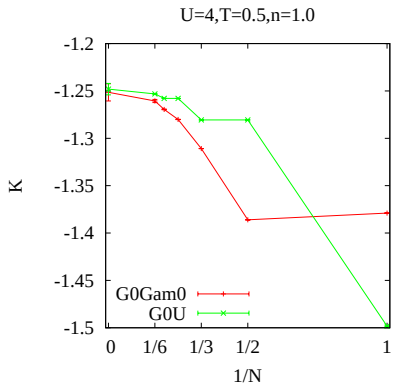


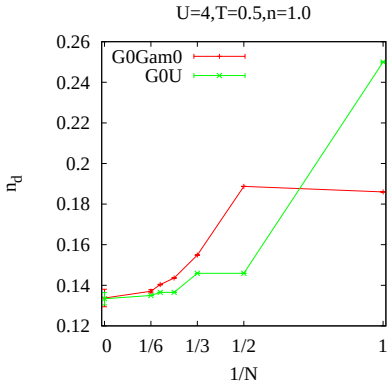




2.5 $T = 0.5,\ n = 1.0$

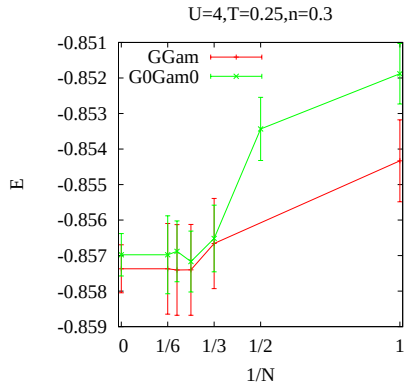


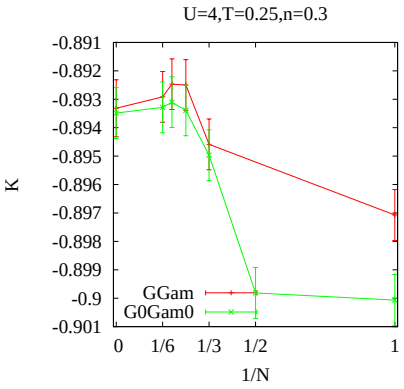


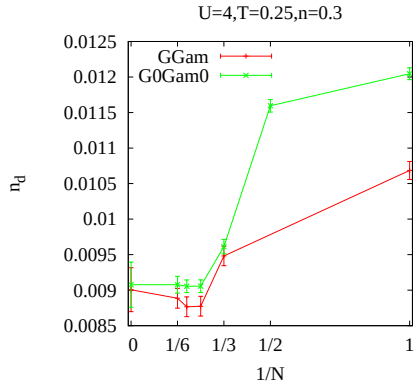


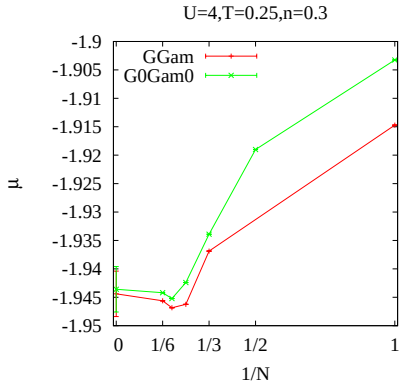
3 $T = 0.25$

3.1 $T = 0.25$, $n = 0.3$

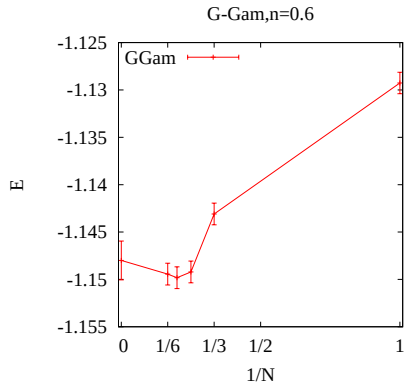


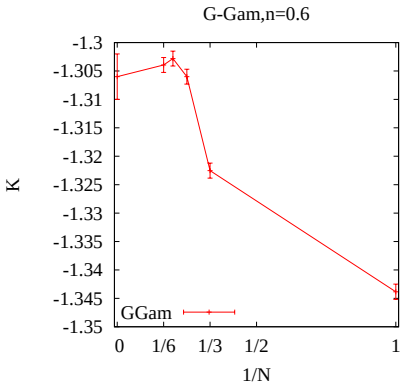


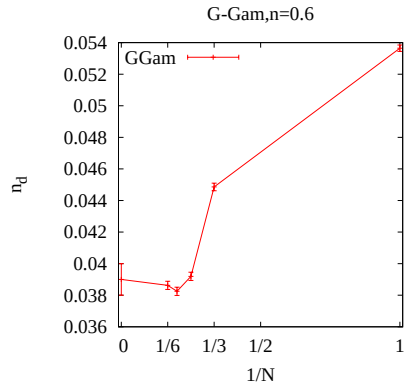


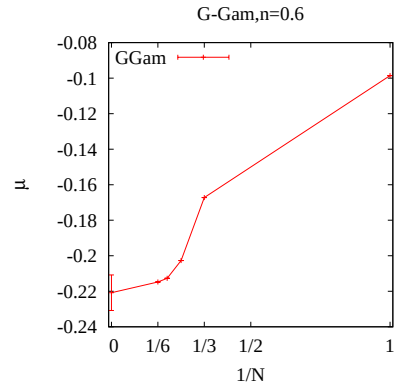


3.2 $T = 0.25,\ n = 0.6$

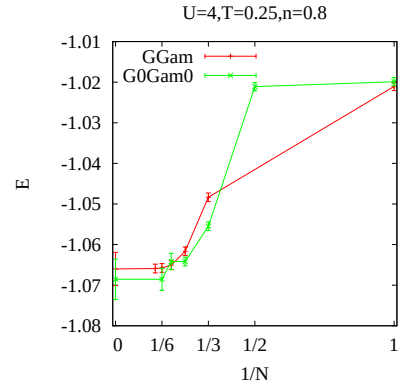


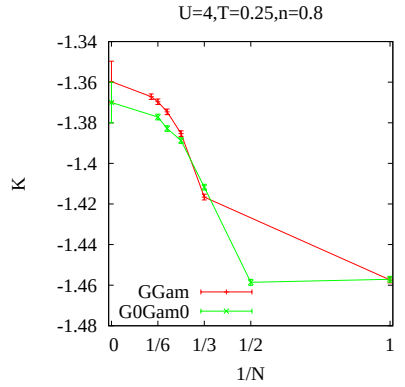


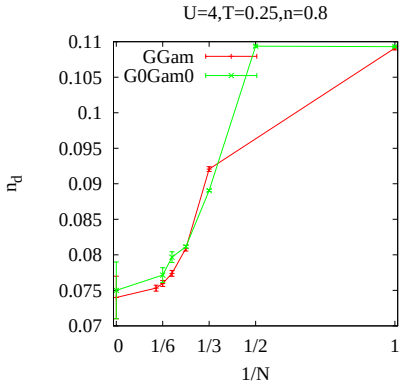


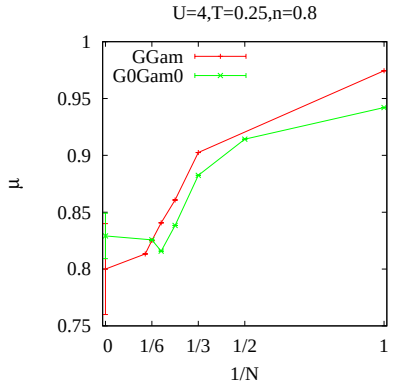


3.3 $T = 0.25,\ n = 0.8$

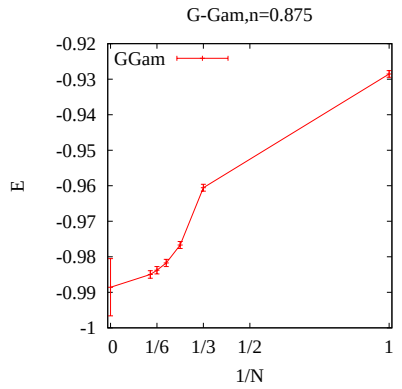


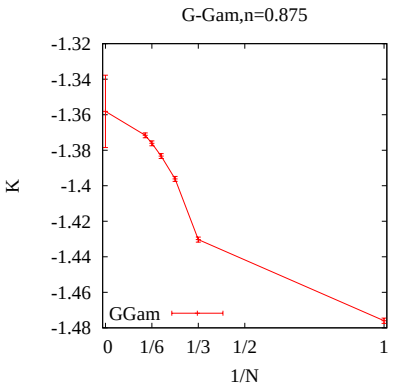


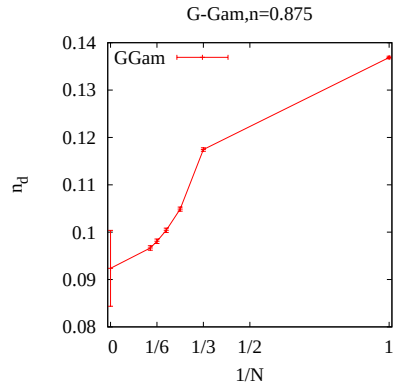


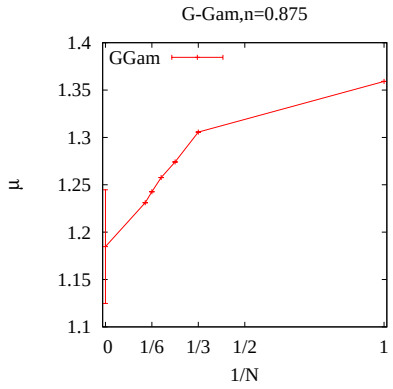


3.4 $T = 0.25$, $n = 0.875$

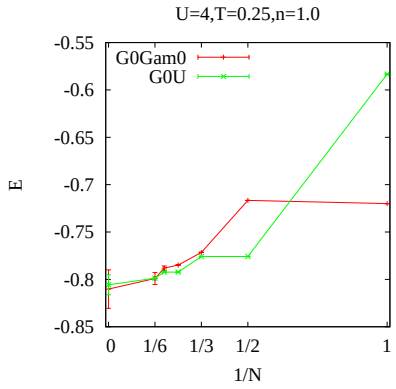






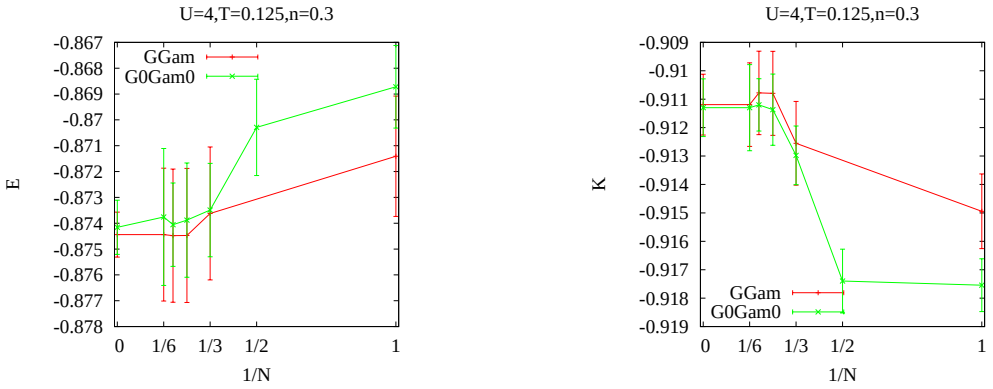


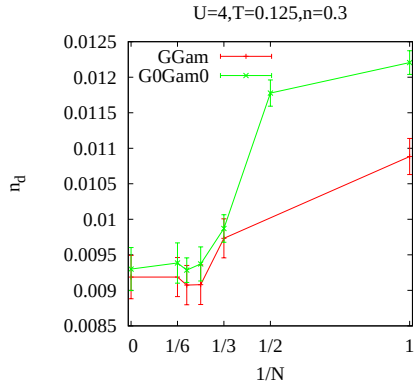
3.5 $T = 0.25,\ n = 1.0$

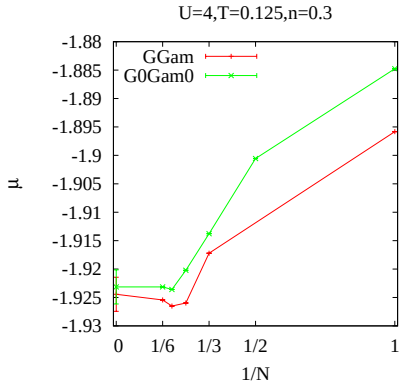


4 $T = 0.125$

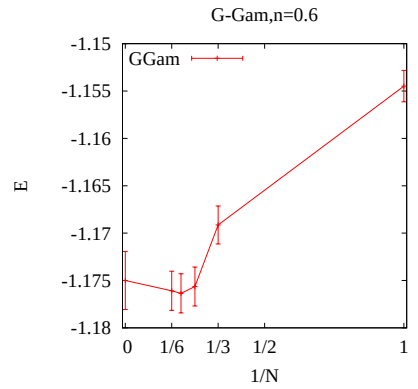
4.1 $T = 0.125,\ n = 0.3$

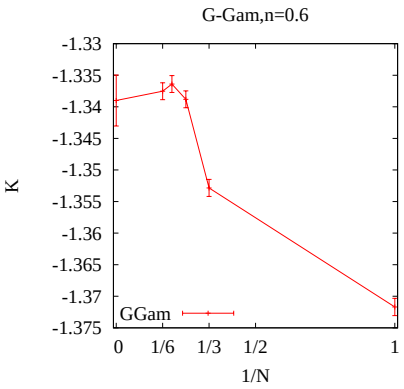


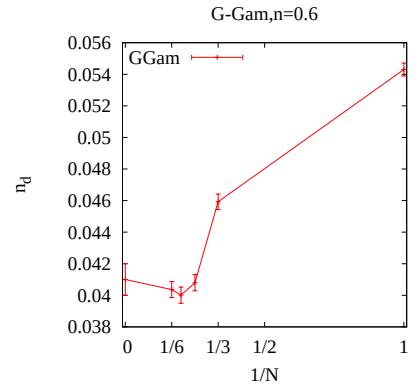

U=4,T=0.125,n=0.3
GGam
G0Gam0
n_d
1/N

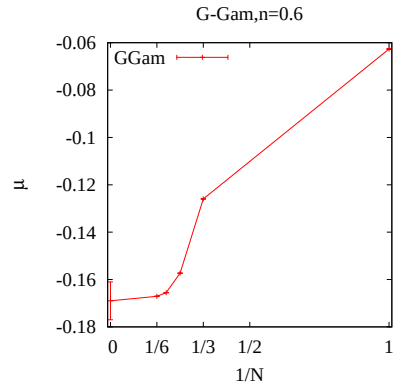

U=4,T=0.125,n=0.3
GGam
G0Gam0
μ
1/N

4.2 $T = 0.125$, $n = 0.6$

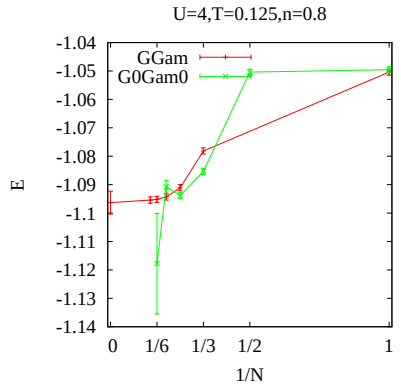

G-Gam,n=0.6
GGam
E
1/N

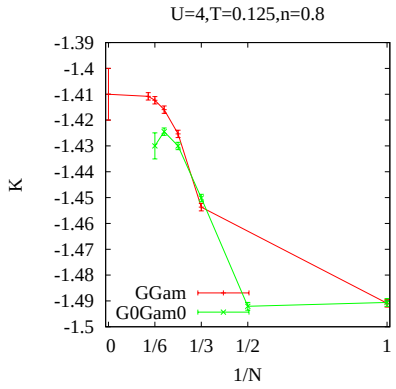

G-Gam,n=0.6
GGam
K
1/N

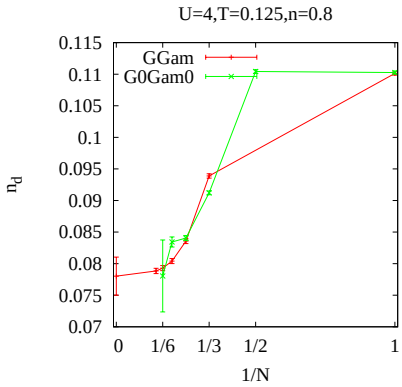

G-Gam,n=0.6
GGam
n_d
1/N

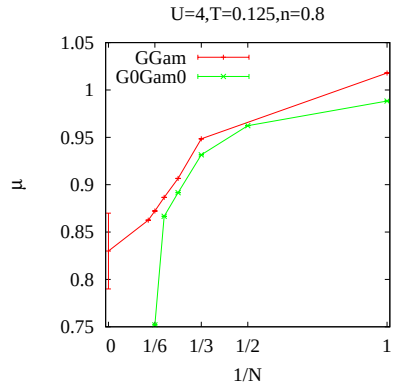

G-Gam,n=0.6
GGam
μ
1/N

4.3 $T = 0.125,\ n = 0.8$

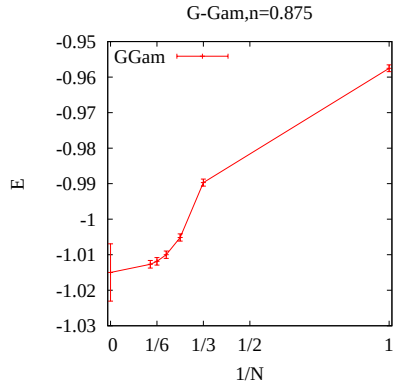


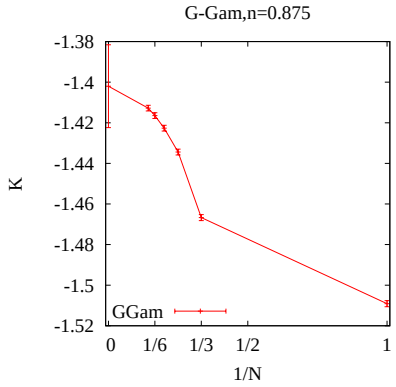


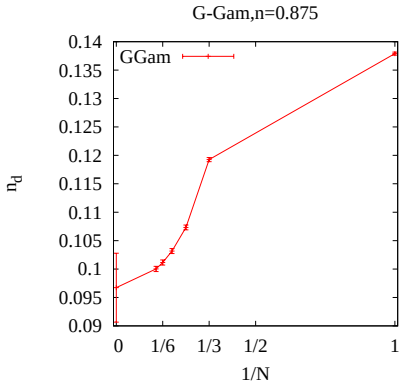


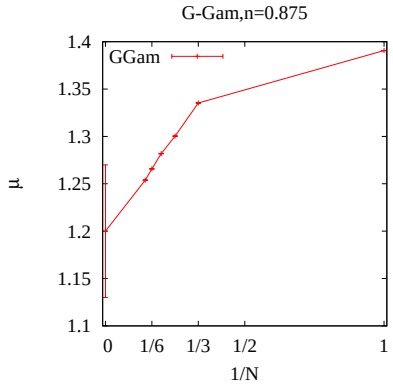


4.4 $T = 0.125,\ n = 0.875$

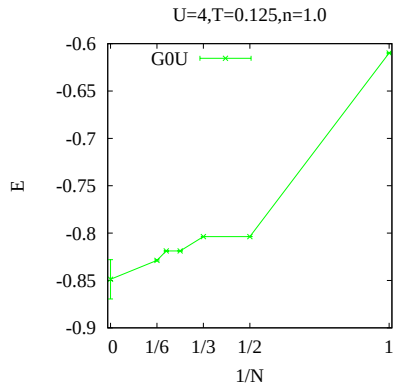


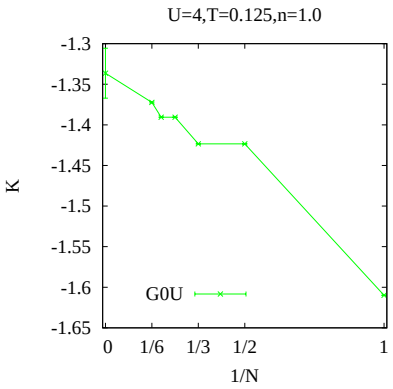


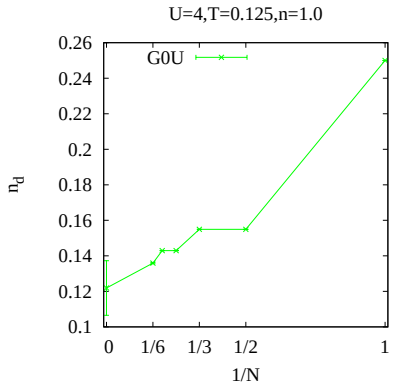

G-Gam,n=0.875
GGam
n_d
1/N


G-Gam,n=0.875
GGam
μ
1/N

4.5 $T = 0.125$, $n = 1.0$


U=4,T=0.125,n=1.0
G0U
E
1/N


U=4,T=0.125,n=1.0
G0U
K
1/N


U=4,T=0.125,n=1.0
G0U
n_d
1/N