

Supplemental Material

February 22, 2017

1 Cross Section

Table 1 contains the underlying event and hadronization correction (UEH) factors applied to the theoretical predictions and the associated systematic uncertainties. Table 2 presents the UEH corrected theory predictions along with the systematic uncertainty on the theoretical prediction. Table 3 shows the relative systematic uncertainty on the data cross section from tracking efficiency, track transverse momentum resolution, calorimeter resolution, and unfolding effects. Table 4 contains the absolute di-jet cross section with statistical and systematic uncertainties. Table 5 gives the particle to detector-level bin migration as encoded in the response matrix used to unfold the data for the cross section extraction, and table 6 gives the detector-level bin purities where purity is defined as: $(N_{\text{Gen}} - N_{\text{Out}})/(N_{\text{Gen}} - N_{\text{Out}} + N_{\text{In}})$. Here N_{Gen} is the number of events generated in a given particle-level mass bin, N_{Out} is the number of events generated in that particle-level mass bin which are reconstructed in a different detector-level mass bin, and N_{In} is the number of events from different particle-level mass bins which are reconstructed in the detector-level bin being evaluated.

Di-jet Mass [GeV/c ²]	Correction Factor	Hi/Lo Scale	PDF	Hi/Lo Total
19-23	1.447	0.378 / 0.115	0.089	0.389 / 0.145
23-28	1.420	0.201 / 0.095	0.071	0.213 / 0.119
28-34	1.368	0.152 / 0.087	0.049	0.160 / 0.100
34-41	1.345	0.104 / 0.082	0.033	0.109 / 0.088
41-49	1.298	0.090 / 0.055	0.043	0.100 / 0.070
49-58	1.268	0.087 / 0.044	0.040	0.096 / 0.059
58-69	1.271	0.085 / 0.051	0.037	0.093 / 0.063
69-82	1.228	0.079 / 0.023	0.033	0.086 / 0.040
82-100	1.223	0.070 / 0.027	0.034	0.077 / 0.043

Table 1: Numerical values for the underlying event and hadronization correction applied to the theoretical cross section values and the corresponding systematic uncertainties (normalized by the theoretical cross section) on these corrections.

Di-jet Mass [GeV/c ²]	Theory [μb]	Hi/Lo UEH	Hi/Lo Scale	Hi/Lo PDF	Hi/Lo Total
19-23	1.570×10^{-1}	0.389 / 0.145	0.175 / 0.188	0.073 / 0.064	0.432 / 0.246
23-28	5.096×10^{-2}	0.213 / 0.119	0.160 / 0.183	0.078 / 0.073	0.278 / 0.230
28-34	1.549×10^{-2}	0.160 / 0.100	0.169 / 0.191	0.119 / 0.084	0.261 / 0.231
34-41	4.693×10^{-3}	0.109 / 0.088	0.189 / 0.195	0.101 / 0.104	0.240 / 0.238
41-49	1.371×10^{-3}	0.100 / 0.070	0.193 / 0.200	0.117 / 0.110	0.247 / 0.238
49-58	3.974×10^{-4}	0.096 / 0.059	0.209 / 0.212	0.137 / 0.119	0.267 / 0.250
58-69	1.088×10^{-4}	0.093 / 0.063	0.227 / 0.219	0.167 / 0.140	0.296 / 0.268
69-82	2.385×10^{-5}	0.086 / 0.040	0.245 / 0.231	0.223 / 0.158	0.342 / 0.283
82-100	3.826×10^{-6}	0.077 / 0.043	0.256 / 0.245	0.341 / 0.193	0.434 / 0.315

Table 2: Numerical values for the underlying event and hadronization corrected theoretical cross section (PDF = CT10). The underlying event and hadronization systematic, theory scale systematic, theory PDF systematic, and total systematic (which is the quadrature sum of of the underlying event and hadronization systematic and the theory-only systematics) are also shown. All values normalized by the theoretical cross section.

Di-jet Mass [GeV/c ²]	Track Efficiency	Track p_T	Hi/Lo Tower E_T	SVD Cutoff	SVD Bin	Hi/Lo Total
19-23	0.015	0.012	0.034 / 0.038	0.035	0.023	0.057 / 0.060
23-28	0.025	0.005	0.050 / 0.055	0.008	0.017	0.059 / 0.064
28-34	0.062	0.026	0.076 / 0.087	0.010	0.009	0.103 / 0.111
34-41	0.079	0.022	0.077 / 0.089	0.022	0.006	0.115 / 0.123
41-49	0.079	0.026	0.082 / 0.093	0.017	0.003	0.118 / 0.126
49-58	0.101	0.036	0.098 / 0.111	0.006	0.003	0.146 / 0.154
58-69	0.125	0.044	0.114 / 0.130	0.008	0.002	0.175 / 0.186
69-82	0.146	0.051	0.132 / 0.151	0.012	0.006	0.203 / 0.216
82-100	0.160	0.056	0.146 / 0.168	0.011	0.007	0.224 / 0.239

Table 3: Numerical values for the five systematic errors on the data cross section (divided by the cross section) as well as the quadrature sum for each di-jet invariant mass bin.

Di-jet Invariant Mass [GeV/c ²]	$\sigma \pm (\text{Stat}) \pm (\text{Sys}) [\mu\text{b}]$
19-23	$(1.188 \pm 0.026_{-0.071}^{+0.067}) \times 10^{-1}$
23-28	$(4.105 \pm 0.096_{-0.261}^{+0.242}) \times 10^{-2}$
28-34	$(1.320 \pm 0.030_{-0.146}^{+0.135}) \times 10^{-2}$
34-41	$(3.923 \pm 0.080_{-0.484}^{+0.451}) \times 10^{-3}$
41-49	$(1.267 \pm 0.020_{-0.160}^{+0.150}) \times 10^{-3}$
49-58	$(4.004 \pm 0.060_{-0.618}^{+0.583}) \times 10^{-4}$
58-69	$(1.099 \pm 0.017_{-0.204}^{+0.192}) \times 10^{-4}$
69-82	$(2.578 \pm 0.048_{-0.557}^{+0.525}) \times 10^{-5}$
82-100	$(4.276 \pm 0.101_{-1.022}^{+0.959}) \times 10^{-6}$

Table 4: The cross section values (in μb) with statistical and systematic uncertainty values for each di-jet invariant mass bin.

2 Asymmetry

Tables 7 and 8 give the di-jet invariant mass bin widths, average invariant mass within each bin, mass shift needed to correct back to parton level, and trigger and reconstruction

		Detector-Level Mass										
		16-19	19-23	23-28	28-34	34-41	41-49	49-58	58-69	69-82	82-100	100-120
Particle-Level Mass	100-120	0.00	0.00	0.00	0.01	0.03	0.04	0.08	0.15	0.24	0.35	0.10
	82-100	0.00	0.00	0.00	0.01	0.03	0.06	0.13	0.25	0.35	0.15	0.01
	69-82	0.00	0.00	0.01	0.02	0.06	0.12	0.24	0.37	0.17	0.01	0.00
	58-69	0.00	0.00	0.01	0.04	0.12	0.25	0.38	0.19	0.01	0.00	0.00
	49-58	0.00	0.00	0.03	0.10	0.23	0.42	0.20	0.01	0.00	0.00	0.00
	41-49	0.00	0.02	0.08	0.24	0.44	0.21	0.01	0.00	0.00	0.00	0.00
	34-41	0.01	0.05	0.21	0.46	0.25	0.01	0.00	0.00	0.00	0.00	0.00
	28-34	0.03	0.19	0.47	0.29	0.02	0.00	0.00	0.00	0.00	0.00	0.00
	23-28	0.12	0.49	0.36	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	19-23	0.41	0.52	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-19	0.73	0.25	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Table 5: Fraction of events in a given particle level di-jet mass bin which are reconstructed in each detector level mass bin. Note that the 16-19 GeV bin is only used in the asymmetry result while the 82-100 and 100-120 GeV bins are not used in the asymmetry result and the 100-120 GeV bin is not used in the cross section (also, several of these bins are combined in the asymmetry measurement).

Di-jet Invariant Mass [GeV/c ²]	Purity
19-23	35%
23-28	41%
28-34	47%
34-41	50%
41-49	50%
49-58	51%
58-69	55%
69-82	61%
82-100	69%

Table 6: Detector-level purity.

bias correction to the A_{LL} value for the same-sign and opposite-sign di-jet topologies, respectively. Tables 9 and 10 contain all systematic uncertainties on the A_{LL} measurements for the same-sign and opposite-sign topologies respectively. Uncertainties on the invariant mass include contributions from uncertainties on the mass shift, jet energy scale, and PYTHIA to NLO cross section difference. Uncertainties on A_{LL} come from trigger and reconstruction bias and residual transverse polarization effects.

The correlations for the quadrature sum of the point-to-point statistical and systematic uncertainties between the 2009 inclusive-jet and di-jet A_{LL} results are shown in Tab. 11. The block encompassing rows 1-22 and columns 1-22 give the correlations among the inclusive-jet results (see supplemental materials for [1]). Bins 1-11 represent the 11 jet p_T points which have $|\eta_{\text{Jet}}| < 0.5$ while bins 12-22 represent the 11 p_T points which have $0.5 < |\eta_{\text{Jet}}| < 1.0$. The block encompassing rows 23-36 and columns 23-36 give the correlations among the di-jet results. Bins 23-29 represent the 7 di-jet invariant mass

points from the same-sign topology and bins 30-36 represent the 7 di-jet invariant mass points from the opposite-sign topology. Note that in the di-jet block, there is no statistical correlation between bins, all off-axis elements are purely from systematic correlations. Finally, the block off-diagonal elements (rows 1-22 & columns 23-36 or rows 23-36 & columns 1-22) give the correlation between the 2009 inclusive-jet and di-jet results for the appropriate jet p_T / di-jet invariant mass bin and topology.

There are two systematic uncertainties on A_{LL} which are not included in the tables but are 100% correlated between bins: the relative luminosity uncertainty and the polarization uncertainty. The relative luminosity uncertainty is a vertical shift uncertainty with a magnitude of 5×10^{-4} and the polarization uncertainty is a vertical scale uncertainty of 6.5%. In addition, the uncertainty on jet p_T / di-jet mass is highly correlated across bins and is not included in the correlation matrix.

Bin	Bin Width [GeV/c ²]	Ave. Mass [GeV/c ²]	Mass Shift [GeV/c ²]	Trig and Reco Bias Shift
1	16-19	17.545	0.155	0.0002
2	19-23	20.843	0.497	0.0005
3	23-28	25.167	0.848	0.0003
4	28-34	30.499	1.163	0.0003
5	34-41	36.840	1.407	0.0015
6	41-58	46.158	2.127	0.0015
7	58-82	64.063	2.585	0.0004

Table 7: A_{LL} result bin sizes, average uncorrected di-jet invariant mass, mass correction to parton level, and shift on A_{LL} due to the trigger and reconstruction bias for the same-sign di-jet topology.

Bin	Bin Width [GeV/c ²]	Ave. Mass [GeV/c ²]	Mass Shift [GeV/c ²]	Trig and Reco Bias Shift
8	16-19	17.674	0.314	0.0006
9	19-23	20.904	0.678	0.0010
10	23-28	25.209	1.079	0.0007
11	28-34	30.544	1.179	0.0018
12	34-41	36.884	1.495	0.0016
13	41-58	46.345	2.444	0.0028
14	58-82	64.472	2.851	0.0048

Table 8: A_{LL} result bin sizes, average uncorrected di-jet invariant mass, mass correction to parton level, and shift on A_{LL} due to the trigger and reconstruction bias for the opposite-sign di-jet topology.

Bin	$\delta\text{Mass} [\text{GeV}/c^2]$				δA_{LL}		
	Mass Shift	JES	Pythia \rightarrow NLO	Total	TRB	Trans Pol	Total
1	0.306	0.407	0.235	0.56	0.0003	0.00028	0.00041
2	0.308	0.477	0.904	1.07	0.0004	0.00028	0.00049
3	0.396	0.569	1.141	1.33	0.0005	0.00028	0.00057
4	0.486	0.684	1.105	1.39	0.0009	0.00032	0.00096
5	0.530	0.822	1.497	1.79	0.0014	0.00064	0.00154
6	0.582	1.028	1.815	2.17	0.0020	0.00130	0.00239
7	0.573	1.426	2.045	2.56	0.0032	0.00251	0.00407

Table 9: Systematic uncertainties on the di-jet mass and A_{LL} for the same-sign topological sample. Contributions to the mass uncertainty include uncertainties on the mass shift to parton level, the jet energy scale (JES), and the difference between the PYTHIA and NLO cross sections. Contributions to the uncertainty on A_{LL} include the trigger and reconstruction bias (TRB) uncertainty and the uncertainty due to the residual transverse beam polarizations.

Bin	$\delta\text{Mass} [\text{GeV}/c^2]$				δA_{LL}		
	Mass Shift	JES	Pythia \rightarrow NLO	Total	TRB	Trans Pol	Total
8	0.298	0.411	0.192	0.54	0.0004	0.00028	0.00049
9	0.339	0.480	0.759	0.96	0.0005	0.00028	0.00057
10	0.418	0.572	1.117	1.32	0.0006	0.00028	0.00066
11	0.471	0.686	1.502	1.72	0.0008	0.00032	0.00086
12	0.535	0.824	1.388	1.70	0.0011	0.00065	0.00128
13	0.636	1.032	1.672	2.07	0.0017	0.00133	0.00216
14	0.718	1.435	2.943	3.35	0.0026	0.00255	0.00364

Table 10: Systematic uncertainties on the di-jet mass and A_{LL} for the opposite-sign topological sample. Contributions to the mass uncertainty include uncertainties on the mass shift to parton level, the jet energy scale (JES), and the difference between the PYTHIA and NLO cross sections. Contributions to the uncertainty on A_{LL} include the trigger and reconstruction bias (TRB) uncertainty and the uncertainty due to the residual transverse beam polarizations.

References

- [1] L. Adamczyk *et al.* [STAR Collaboration], Phys. Rev. Lett. **115**, 092002 (2015).

Bin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
1	1.000	0.013	0.008	0.007	0.008	0.008	0.006	0.005	0.003	0.002	0.002	0.043	0.011	0.011	0.005	0.005	0.003	0.005	0.002	0.001	0.002	0.001	0.014	0.003	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000		
2	0.013	1.000	0.013	0.011	0.015	0.010	0.009	0.005	0.004	0.003	0.002	0.002	0.043	0.011	0.011	0.005	0.005	0.003	0.005	0.002	0.001	0.002	0.001	0.014	0.003	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000	
3	0.008	0.013	1.000	0.012	0.014	0.013	0.009	0.007	0.004	0.003	0.002	0.002	0.043	0.011	0.011	0.009	0.008	0.007	0.008	0.004	0.003	0.002	0.002	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000	
4	0.007	0.011	0.012	1.000	0.017	0.017	0.013	0.009	0.005	0.003	0.002	0.006	0.010	0.013	0.039	0.012	0.010	0.010	0.005	0.003	0.003	0.001	0.091	0.105	0.063	0.015	0.001	0.000	0.000	0.076	0.112	0.076	0.023	0.003	0.000	0.000		
5	0.008	0.015	0.014	0.017	1.000	0.028	0.022	0.017	0.010	0.006	0.003	0.008	0.013	0.017	0.019	0.034	0.016	0.017	0.011	0.007	0.005	0.002	0.032	0.106	0.119	0.062	0.010	0.001	0.000	0.019	0.099	0.121	0.077	0.018	0.001	0.000		
6	0.008	0.015	0.013	0.017	0.028	1.000	0.031	0.026	0.016	0.009	0.004	0.008	0.014	0.018	0.014	0.018	0.033	0.026	0.018	0.011	0.008	0.003	0.063	0.060	0.116	0.135	0.055	0.006	0.000	0.001	0.046	0.106	0.138	0.075	0.012	0.000		
7	0.006	0.010	0.009	0.013	0.022	0.031	1.000	0.033	0.024	0.013	0.006	0.005	0.009	0.012	0.010	0.014	0.019	0.040	0.024	0.016	0.011	0.005	0.000	0.017	0.066	0.132	0.145	0.042	0.000	0.000	0.000	0.010	0.057	0.117	0.151	0.063	0.001	
8	0.005	0.009	0.007	0.009	0.017	0.026	0.033	1.000	0.039	0.026	0.013	0.004	0.007	0.010	0.007	0.010	0.015	0.026	0.050	0.026	0.020	0.009	0.000	0.002	0.070	0.154	0.153	0.003	0.000	0.000	0.001	0.020	0.058	0.135	0.175	0.007	0.000	
9	0.003	0.005	0.004	0.005	0.010	0.016	0.024	0.039	1.000	0.046	0.028	0.003	0.005	0.006	0.004	0.005	0.009	0.017	0.026	0.046	0.032	0.018	0.000	0.000	0.007	0.024	0.076	0.232	0.000	0.000	0.004	0.019	0.059	0.219	0.058	0.000	0.000	
10	0.002	0.004	0.003	0.003	0.006	0.009	0.013	0.026	0.046	1.000	0.052	0.002	0.003	0.004	0.002	0.003	0.004	0.008	0.016	0.026	0.048	0.032	0.000	0.000	0.000	0.000	0.022	0.162	0.166	0.000	0.000	0.000	0.006	0.006	0.017	0.136	0.195	0.000
11	0.002	0.003	0.002	0.002	0.003	0.004	0.006	0.013	0.028	0.052	1.000	0.001	0.003	0.003	0.001	0.002	0.002	0.004	0.006	0.013	0.028	0.040	0.000	0.000	0.000	0.000	0.002	0.060	0.266	0.000	0.000	0.000	0.001	0.005	0.005	0.046	0.245	0.000
12	0.043	0.011	0.007	0.006	0.008	0.008	0.005	0.004	0.003	0.002	0.001	1.000	0.009	0.009	0.005	0.003	0.003	0.004	0.003	0.002	0.001	0.002	0.001	0.021	0.007	0.000	0.000	0.000	0.000	0.000	0.017	0.012	0.003	0.000	0.000	0.000	0.000	
13	0.011	0.047	0.011	0.010	0.013	0.014	0.009	0.007	0.005	0.003	0.003	0.003	0.009	1.000	0.016	0.008	0.006	0.004	0.008	0.004	0.002	0.003	0.001	0.021	0.007	0.000	0.000	0.000	0.000	0.000	0.017	0.012	0.003	0.000	0.000	0.000	0.000	
14	0.011	0.018	0.051	0.013	0.017	0.018	0.012	0.010	0.006	0.004	0.003	0.009	0.016	1.000	0.011	0.009	0.007	0.010	0.005	0.004	0.004	0.002	0.064	0.037	0.011	0.001	0.000	0.000	0.000	0.047	0.045	0.020	0.004	0.000	0.000	0.000		
15	0.005	0.009	0.009	0.039	0.014	0.014	0.010	0.007	0.004	0.002	0.001	0.005	0.008	0.011	1.000	0.009	0.008	0.008	0.004	0.002	0.003	0.001	0.055	0.065	0.037	0.008	0.001	0.000	0.000	0.020	0.059	0.049	0.018	0.003	0.000	0.000		
16	0.005	0.008	0.008	0.012	0.034	0.018	0.014	0.010	0.005	0.003	0.002	0.003	0.006	0.009	0.009	1.000	0.012	0.011	0.007	0.004	0.002	0.002	0.018	0.065	0.069	0.034	0.005	0.000	0.000	0.002	0.041	0.065	0.052	0.016	0.002	0.000		
17	0.003	0.006	0.007	0.010	0.016	0.033	0.019	0.015	0.009	0.004	0.002	0.003	0.004	0.007	0.008	0.012	1.000	0.015	0.010	0.006	0.004	0.001	0.001	0.036	0.068	0.076	0.029	0.003	0.000	0.000	0.014	0.051	0.074	0.052	0.011	0.000		
18	0.005	0.009	0.008	0.010	0.017	0.026	0.040	0.026	0.017	0.008	0.004	0.004	0.004	0.004	0.008	0.010	0.008	0.011	0.015	1.000	0.017	0.000	0.000	0.010	0.039	0.074	0.076	0.020	0.000	0.000	0.002	0.024	0.055	0.083	0.050	0.001	0.000	
19	0.002	0.004	0.004	0.005	0.011	0.018	0.024	0.050	0.026	0.016	0.006	0.006	0.002	0.003	0.005	0.004	0.007	0.010	0.017	1.000	0.015	0.011	0.005	0.000	0.001	0.015	0.039	0.083	0.073	0.001	0.000	0.000	0.007	0.025	0.061	0.106	0.008	
20	0.001	0.003	0.002	0.003	0.007	0.011	0.016	0.026	0.046	0.026	0.013	0.001	0.002	0.004	0.002	0.004	0.006	0.010	0.017	1.000	0.015	0.010	0.005	0.000	0.000	0.004	0.013	0.040	0.114	0.011	0.000	0.000	0.001	0.008	0.025	0.109	0.053	
21	0.002	0.004	0.002	0.003	0.005	0.008	0.011	0.020	0.032	0.048	0.028	0.002	0.003	0.004	0.003	0.002	0.004	0.004	0.007	0.011	0.017	1.000	0.014	0.000	0.000	0.001	0.004	0.012	0.081	0.070	0.000	0.000	0.000	0.002	0.007	0.058	0.127	
22	0.001	0.002	0.001	0.001	0.002	0.003	0.005	0.009	0.018	0.032	0.040	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.003	0.008	0.014	1.000	0.000	0.000	0.000	0.001	0.004	0.030	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.120	
23	0.014	0.034	0.101	0.091	0.032	0.003	0.000	0.000	0.000	0.000	0.000	0.009	0.021	0.064	0.055	0.018	0.001	0.000	0.000	0.000	0.000	0.000	1.000	0.002	0.001	0.002	0.001	0.010	0.004	0.004	0.004	0.004	0.002	0.003	0.001	0.001	0.000	
24	0.003	0.012	0.059	0.105	0.106	0.060	0.017	0.002	0.000	0.000	0.000	0.002	0.007	0.037	0.065	0.065	0.036	0.010	0.001	0.000	0.000	0.000	0.002	1.000	0.003	0.003	0.003	0.001	0.001	0.006	0.016	0.006	0.008	0.004	0.005	0.002	0.000	
25	0.000	0.002	0.018	0.063	0.119	0.116	0.066	0.026	0.007	0.001	0.000	0.000	0.001	0.011	0.037	0.069	0.068	0.039	0.015	0.004	0.001	0.000	0.001	0.003	1.000	0.002	0.001	0.000	0.001	0.003	0.005	0.010	0.005	0.002	0.003	0.001	0.001	
26	0.000	0.000	0.002	0.015	0.062	0.135	0.132	0.070	0.024	0.008	0.002	0.000	0.000	0.001	0.008	0.034	0.076	0.074	0.039	0.013	0.004	0.001	0.002	0.003	0.002	1.000	0.002	0.000	0.001	0.004	0.005	0.004	0.009	0.003	0.003	0.001	0.000	
27	0.000	0.000	0.000	0.001	0.010	0.055	0.142	0.154	0.076	0.022	0.007	0.000	0.000	0.000	0.001	0.005	0.029	0.076	0.083	0.040	0.012	0.004	0.001	0.003	0.001	0.002	1.000	0.000	0.001	0.003	0.005	0.004	0.005	0.009	0.003	0.001	0.000	
28	0.000	0.000	0.000	0.000	0.001	0.006	0.042	0.153	0.232	0.162	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.073	0.114	0.081	0.030	0.000	0.001	0.000	0.000	1.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.014	0.000	0.000	
29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.032	0.166	0.266	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.011	0.070	0.108	0.001	0.001	0.001	0.001	0.001	1.000	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.001	0.005	
30	0.019	0.039	0.111	0.076	0.019	0.001	0.000	0.000	0.000	0.000	0.000	0.010	0.017	0.047	0.059	0.041	0.014	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	1.000	0.011	0.009	0.011	0.005	0.007	0.003	
31	0.004	0.017	0.070	0.112	0.099	0.046	0.010	0.001	0.000	0.000	0.000	0.004	0.012	0.045	0.059	0.041	0.014	0.004	0.005	0.005	0.005	0.001	0.002	0.011	1.000	0.012	0.015	0.007	0.009	0.004	0.007	0.009	0.009	0.004	0.000	0.000	0.000	
32	0.001	0.003	0.026	0.076	0.121	0.106	0.057	0.020	0.004	0.000	0.000	0.000	0.003	0.020	0.049	0.065	0.051	0.024	0.007	0.001	0.000	0.000	0.004	0.001	0.001	0.001	0											