UR-481

MUON-DEUTERON DEEP INELASTIC SCATTERING

BY

I.J. KIM, A. ENTENBERG, H. JOSTLEIN, K. KONIGSMANN, I. KOSTOULAS,
A.C. MELISSINOS, E. ASLANIDES, L. LEDERMAN, P. LIMON, M. MAY,
P. RAPP, H. GITTLESON, T. KIRK, M. MURTAGH, M.J. TANNENBAUM
J. SCULLI, T. WHITE, T. YAMANOUCHI

DEPARTMENT OF PHYSICS & ASTRONOMY, UNIVERSITY OF ROCHESTER, ROCHESTER, N.Y. 14627

DEPARTMENT OF PHYSICS, COLUMBIA UNIVERSITY, NEW YORK, N.Y. 10027

DEPARTMENT OF PHYSICS, HARVARD UNIVERSITY, CAMBRIDGE, MASS. 02138

NATIONAL ACCELERATOR LABORATORY, BATAVIA, ILLINOIS 60510

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

MUON-DEUTERON DEEP INELASTIC SCATTERING*

I. J. Kim, A. Entenberg, H. Jöstlein,[†] K. Königsmann, I. Kostoulas,[‡]
A. C. Melissinos, E. Aslanides,[§] L. Lederman, P. Limon,^{§§} M. May,
P. Rapp, H. Gittleson, T. Kirk,⁺⁺ M. Murtagh,⁺ M. J. Tannenbaum,^{††}
J. Sculli,[¶] T. White,^{**} and T. Yamanouchi

Department of Physics and Astronomy, University of Rochester, Rochester, N.Y. 14627

Department of Physics, Columbia University, New York, N.Y. 10027

Department of Physics, Harvard University, Cambridge, Mass. 02138

National Accelerator Laboratory, Batavia, Illinois 60510

NOTICE
This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Atomic Energy Commission, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

*Work supported in part by the U.S. Atomic Energy Commission and by the National Science Foundation.

During the performance of this work the authors held guest appointments at Brookhaven National Laboratory.

Present addresses:

[†]SUNY at Stony Brook, N.Y. 11790.

[‡]Univ. of California, Los Angeles, California 90032.

[§]On leave from Centre des Recherches Nucleaires, Strasbourg, France.

^{§§}National Accelerator Laboratory, Batavia, Illinois 60510

⁺⁺Univ. of Illinois, Urbana, Illinois 61801

⁺Brookhaven National Laboratory, Upton, L.I., New York 11973

^{††}Rockefeller University, New York, N.Y. 10021

[¶]New York University, New York, N.Y. 10003

^{**}Nuclear Physics Lab., Oxford University, Oxford, England

Submitted to Phys. Rev. Letters

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

Abstract

We have measured deep inelastic muon-deuteron scattering in the range $0.4 < q^2 < 3.4$ and $1.6 < \nu < 5.6$ GeV. We have extracted the neutron structure function and find that it scales in the Bjorken variable $x = 1/\omega$ but that νW_2^n differs significantly from νW_2^p , as also found in e-d scattering. For a quantitative comparison of μ -d and e-d scattering we formed the ratio $r(Q^2) = \left(\nu W_2\right)_\mu^d / \left(\nu W_2\right)_e^d = N(1 + Q^2/\Lambda^2)^{-2}$ and find $N = 0.925 \pm 0.038$ and $1/\Lambda^2 = -0.019 \pm 0.016$. These values of N and $1/\Lambda^2$ are compatible with results obtained from μ -p inelastic scattering.¹

Previous and recent measurements of muon-proton elastic and inelastic scattering^{1,2} have failed to reveal a muon-electron difference and have set a limit on a possible difference parameter of $\Lambda^2 > 26 \text{ GeV}^2$. However experiments on muon-nuclear deep inelastic scattering at N.A.L. have reported³ a deviation from scaling⁴ at 4-momentum transfer $Q^2 \geq 30 (\text{GeV}/c)^2$. It is therefore important to establish whether the neutron structure functions measured with muons are identical with the corresponding structure functions deduced from electron scattering.⁵

To examine this question we have measured muon-deuteron deep inelastic scattering at the Brookhaven AGS using a one-arm wide-aperture magnetic spectrometer.¹ Muons of mean energy 7.3 GeV were incident on a 48-inch long deuterium target, the flux being of the order of 10^6 muons/pulse, with a spill time of ~700 msec. The incident muons were tagged in space and momentum by means of scintillation hodoscopes and the outgoing muons were measured using spark chambers with magnetostrictive readout. Typically, momentum measurements were accurate to $\pm 1.2\%$ and angle measurements to $\pm 1 \text{ mrad}$. The 4-momentum transfer was in the range $0.4 < Q^2 < 3.5 (\text{GeV}/c)^2$ and the outgoing energy ranged between $2.1 < E' < E (\text{GeV})$. The systematic normalization error has been estimated to be $\pm 7\%$. The mean azimuthal acceptance is 6% and only points with acceptance larger than 1% have been used in the analysis of the data. Events due to pion contamination in the beam or in the outgoing track are estimated to be less than 0.1% of all events.

The muon-deuteron scattering is compared directly with muon-proton scattering obtained in the same apparatus and under exactly identical conditions. Thus, most systematic errors do not enter in our result for the ratio of the neutron structure function to that of the proton.

To extract the muon-neutron cross section the same procedure as used in the analysis of e-d scattering⁵ was adopted. Namely: (1) The scattering is predominantly incoherent. (2) The impulse approximation is valid.⁶ (3) The scattering proceeds mainly through one-photon exchange, and (4) The final state interaction can be neglected. Under these assumptions we write

$$\sigma_d = (\sigma_p + \sigma_n)(1 + C) \quad (1)$$

where the correction factor takes account of the fact that the neutron and proton are bound into a deuteron. The main contributions to C arise from the Glauber correction⁷ and from the Fermi motion of the nucleons. We correct for Fermi motion by "smearing" the scattering amplitudes over the deuteron wave function in momentum space as discussed by West.⁸

Briefly,⁹ we express the differential cross section in the form given by Drell and Walecka¹⁰ and use $\sigma_L/\sigma_T = R = R_p = R_n = R_d = 0.18$ as obtained from e-p inelastic scattering.¹¹

$$\frac{d^2\sigma}{dQ^2 dv} = \frac{4\pi\alpha^2}{Q^4} \frac{E'}{Ev} (\nu W_2) \cos^2 \frac{\theta}{2} \left[1 + \frac{2}{1+R} \left(1 + \frac{\nu^2}{Q^2} \right) \tan^2 \frac{\theta}{2} \right] \quad (2)$$

From the measured structure function of the proton $(\nu W_2)^p$ we obtain the smeared $(\nu W_2)^{ps}$ by using the Reid soft-core model for the momentum distribution of the nucleon in deuterium.¹² The integration is performed by fitting our data to an analytic expression for νW_2 as given by Rittenberg and Rubinstein.¹³ It is then possible to define smearing corrections as a function of Q^2 and ν applicable to the kinematic region covered by our apparatus. These are defined through

$$S_p = (\nu W_2^p)/(\nu W_2)^{ps} \quad S_n = (\nu W_2^n)/(\nu W_2)^{ns}$$

In general the correction for smearing is small and does not exceed 10% (for any Q^2, ν bin); the smearing correction averaged over an x-bin is much smaller as can be seen in Table I.

The data were binned in intervals $\Delta Q^2 = 0.2 \text{ (GeV/c)}^2$ and $\Delta v = 0.4 \text{ GeV}$. Only data with $Q^2 > 0.4 \text{ (GeV/c)}^2$ and $W^2 > 2.56 \text{ GeV}^2$ were used in the analysis yielding 3642 μ -p and 4679 μ -d events. The cross sections were radiatively corrected and $(vW_2)^p$, $(vW_2)^d$ were extracted using Eq. (2). These structure functions are shown as a function of $\omega = 2m\nu/Q^2$ in Fig. 1.

From the measured values of $(vW_2)^p$ we calculated $(vW_2)^{ps}$ as discussed previously and by definition

$$(vW_2)^{ns} = (vW_2)^d - (vW_2)^{ps} \quad (3)$$

Having thus obtained the measured values of $(vW_2)^{ns}$ we extract $(vW_2)^n$ by inverting the smearing calculation. The structure functions and smearing corrections were evaluated in the Q^2 - v plane, corrected for smearing, and then combined into bins of $x = 1/\omega = Q^2/2m\nu$ by using statistical averaging; the width of the bins is $\Delta x = 0.05$.

Our results are given in Table I and shown in Fig. 2. We note that our data are limited to the region $0 < x < 0.60$, the statistical accuracy being best at small x . In Fig. 2a we give $(vW_2^n/vW_2^p) = [(vW_2^d S_p/vW_2^p) - 1](S_n/S_p)$ and the shaded area indicates the corresponding values obtained from e-d scattering.⁵ One observes that the neutron structure function is different from the corresponding proton structure function, the difference increasing with x . Furthermore the μ -d data are in agreement with the e-d data. A linear fit in x to our data yields

$$(vW_2^n/vW_2^p) = (0.952 \pm 0.075) - (0.807 \pm 0.289) x \quad (4)$$

with a $\chi^2 = 2.63$ for 9 degrees of freedom. The accuracy of the data is not sufficient to establish that Eq. (4) deviates from 1.0 at $x = 0$ or that it violates the quark-parton limit of 0.25 at $x = 1.0$.

In Fig. 2b we show the difference $(vW_2)^P - (vW_2)^n = (vW_2)^P (1 + S_n/S_p) - (vW_2)^d S_n \approx 2 (vW_2)^P - (vW_2)^d$ and again the shaded area shows the corresponding results from e-d scattering. The difference of the neutron and proton structure functions exhibits a broad peak at $x \approx 0.35$. As has been discussed by other authors,⁵ this behavior of $[(vW_2)^P - (vW_2)^n]$ cannot be explained quantitatively by current models of the nucleon.

Clearly, $(vW_2)^n$ as measured with incident muons is fully compatible with the value obtained using incident electrons. To obtain a quantitative measure of this compatibility we have compared directly the values of $(vW_2)_\mu^d$ obtained in this experiment with $(vW_2)_e^d$ calculated from the results of the e-d measurements. $(vW_2)_e^d$ was reconstructed for our kinematic region by using the Atwood fit¹⁴ for $(vW_2)_e^P$, the ratio of $(vW_2)^n/(vW_2)^P$ given in reference (5) and after applying appropriate smearing corrections.

Next we formed the ratio of $(vW_2)_\mu^d/(vW_2)_e^d \equiv r(Q^2)$ as a function of Q^2 . The ratios $r(Q^2)$ were fitted to the usual form for a possible breakdown of μ -e universality

$$\frac{(vW_2)_\mu^d}{(vW_2)_e^d} = r(Q^2) = N \left[\frac{1}{1 + Q^2/\Lambda^2} \right]^2$$

Using only data in the interval $0.4 < Q^2 < 2.4 \text{ (GeV/c)}^2$ we obtain¹⁵

$$N = 0.925 \pm 0.038 \quad 1/\Lambda^2 = -0.019 \pm 0.015 \text{ } (\mu\text{-d})/(\text{e-d})$$

(with a $\chi^2 = 7.09$ for 9 d.f.) which can be compared to the results from μ -p deep inelastic scattering

$$N = 0.997 \pm 0.043 \quad 1/\Lambda^2 = +0.006 \pm 0.016 \text{ } (\mu\text{-p})/(\text{e-p})$$

Since N and $1/\Lambda^2$ are always strongly correlated we show in Fig. 3 the contours in the $(N), (1/\Lambda^2)$ plane for one and two standard deviations. The results

are fully compatible and indicate that μ -n and e-n deep inelastic scattering are identical for the region of $Q^2 < 3.5 \text{ (GeV/c)}^2$.

In conclusion we note that μ -n deep inelastic scattering behaves in complete analogy to e-n scattering. It shows that both the proton and neutron deep inelastic structure functions scale but are different from one another. Furthermore, no indication of a μ -e difference appears in agreement with the results obtained in μ -p inelastic scattering.^{1,16}

We are indebted to the AGS staff for making this experiment possible and to Messrs. J. Kim, E. Ruggiero, J. Sanders and J. Yee for assistance during the run.

References and Notes

1. A. Entenberg et al, Phys. Rev. Letters 32, 486 (1974).
2. I. Kostoulas et al, Phys. Rev. Letters 32, 489 (1974).
3. K. W. Chen, Bull. Am. Phys. Society 19, (1), 100 (1974); also Physics Today 27, 17 (April 1974).
4. J. D. Bjorken, Phys. Rev. 179, 1547 (1969).
5. A. Bodek et al, Phys. Rev. Letters 30, 1087 (1973); J. S. Poucher et al, Phys. Rev. Letters 32, 118 (1974).
6. For the applicability of the impulse approximation see for instance M. Goldberger and K.M. Watson Collision Theory (John Wiley & Sons).
7. The Glauber correction (see for instance R. J. Glauber, Phys. Rev. 100, 242 (1955)) is significant for high energy scattering but for small momentum transfer; in our kinematic range this correction can be safely neglected.
8. G. B. West, Physics Letters 37B, 509 (1971); W. B. Atwood and G. B. West, Phys. Rev. D7, 773 (1973).
9. For a more detailed discussion of the smearing correction procedure see Appendix A.
10. S. D. Drell and J. D. Walecka, Ann. Phys. (New York) 4, 75 (1964).
11. See ref. (5); also G. Miller et al, Phys. Rev. D5, 528 (1972).
12. R. V. Reid, Jr., Ann. Phys. (N.Y.) 50, 411 (1968). The results are quite insensitive to the choice of the model for the deuterium wave function.
13. V. Rittenberg and H. R. Rubinstein, Phys. Letters 35B, 50 (1971).
14. W. Atwood, private communication. This fit is almost equivalent to that of ref. (13) and to that of M. Breidenbach and J. Kuti, Phys. Letters 41B, 345 (1972).

15. The value of N was floated around $N = 1.0$ with a standard deviation of $\Delta N = 0.1$ as also discussed in reference (2). Leaving N completely free yields $N = 0.916 \pm 0.040$, $1/\Lambda^2 = -0.024 \pm 0.017$.
16. T. J. Braunstein et al, Phys. Rev. D6, 106 (1972).

Table I

Results of μ -d deep inelastic scattering

$\langle x \rangle$	νW_2^d	νW_2^p	S_p	S_n	$\nu W_2^n / \nu W_2^p$	$\nu W_2^p - \nu W_2^n$
0.072	0.541 ± 0.018	0.280 ± 0.014	0.980	0.975	0.93 ± 0.09	0.020 ± 0.027
0.122	0.591 ± 0.020	0.312 ± 0.014	0.983	0.973	0.89 ± 0.09	0.034 ± 0.028
0.173	0.578 ± 0.020	0.322 ± 0.015	0.994	0.981	0.79 ± 0.09	0.068 ± 0.029
0.221	0.525 ± 0.023	0.316 ± 0.017	1.001	0.991	0.66 ± 0.10	0.107 ± 0.034
0.270	0.539 ± 0.026	0.301 ± 0.019	1.006	0.997	0.79 ± 0.12	0.064 ± 0.037
0.318	0.447 ± 0.023	0.272 ± 0.017	1.012	1.006	0.64 ± 0.11	0.098 ± 0.033
0.375	0.447 ± 0.028	0.265 ± 0.020	1.025	1.013	0.71 ± 0.14	0.078 ± 0.039
0.430	0.344 ± 0.024	0.215 ± 0.019	1.011	1.003	0.59 ± 0.15	0.088 ± 0.036
0.472	0.292 ± 0.028	0.173 ± 0.020	1.006	0.991	0.69 ± 0.21	0.054 ± 0.038
0.540	0.231 ± 0.021	0.150 ± 0.020	1.023	1.013	0.53 ± 0.21	0.070 ± 0.035
			1.017	1.012

Fig. 1 The structure functions νW_2 for free protons and for deuterons as obtained from μ -p and μ -d scattering. They are presented as a function of the Bjorken scaling⁴ variable $\omega = 2m\nu/q^2$.

Fig. 2(a) The ratio $\nu W_2^n / \nu W_2^p$ as a function of $x = 1/\omega$.

Fig. 2(b) The difference $\nu W_2^p - \nu W_2^n$ as a function of $x = 1/\omega$. In both graphs the shaded area represents the same functions as measured in e-d and e-p scattering, within their one standard deviation error.⁵

Fig. 3 The one and two standard deviation contours for the μ -e universality breakdown parameter $1/\Lambda^2$ as obtained from comparing μ -d and e-d deep inelastic scattering; N is the relative normalization of these measurements; data from ref. (1) which were obtained by comparing μ -p and e-p scattering are also shown.

APPENDIX A

Evaluation of the Smearing Correction

The differential cross section $d^2\sigma/dQ^2 dv$ is assumed to be of the form of Eq. (2) of the text¹¹. The smeared structure function then has the form⁸

$$\begin{aligned} vW_2^{ps}(Q^2, v) = \frac{M}{(2\pi)^2} \int_0^\infty p dp R(p) \int_{\Omega_-}^{\Omega_+} dv' [(v'W)_2(Q^2, v)] \frac{p}{v} \left(\left[\frac{v'}{v} + (1-\rho^2) \left(\frac{p^0}{M} - \frac{v'}{v} \right) \right] \right. \\ \left. + \frac{1}{2} (1 - \rho^2) \left[\frac{p}{M^2} - \rho^2 \left(\frac{p^0}{M} - \frac{v'}{v} \right)^2 \right] \right) \end{aligned}$$

$$\Omega_{\pm} = \frac{v}{M} (p^0 \pm \frac{p}{\rho}) \quad (5)$$

$$p^0 = M_d - \sqrt{p^2 + M^2}$$

$$\rho = (1 + \frac{Q^2}{v^2})^{-1/2}$$

where M and M_d are the mass of proton and deuteron respectively. We have a similar expression for W_1 . $R(p)$ is the momentum distribution of the nucleon in deuterium and we have used the Reid soft-core model.¹²

The form of vW_2 used in Eq. (5) is obtained by fitting our data to the Rittenberg-Rubinstein¹³ expression which is valid even in the low Q^2 range

$$vW_2(Q^2, v) = A(W) \frac{w_W}{\omega} \sum_{n=3}^5 a_n (1 - x_W)^n \quad (6)$$

with $W^2 = M^2 + 2Mv - Q^2$, $x_W = 1/w_W = (Q^2 + a^2)/(2Mv + b^2)$ where the parameters a^2 and b^2 are determined by fitting in the scaling region.

$A(W)$ is a measure of the contribution of the resonances and approaches unity for $W > 2$ GeV. We have used the following parametrization

$$a_3 = 0.892 \pm 0.196$$

$$a_4 = 1.135 \pm 0.160$$

$$a_5 = -1.730 \pm 0.133$$

and $a^2 = 0.119$, $b^2 = 1.122$. The choice of this set of parameters is not unique and several other fits of similar form have been published.

As discussed in the main text, given νW_2^{ps} we define the smearing correction

$$S_p = (\nu W_2^p) / (\nu W_2)^{ps}$$

by using the fitted value [Eq. (6)] for νW_2^p . We can also obtain $(\nu W_2)^{ns}$ through Eq. (3) of the text

$$(\nu W_2)^{ns} = (\nu W_2)^d - (\nu W_2)^{ps} \quad (3)$$

Again it is advantageous to fit Eq. (6) to the deuterium data points and to use the fitted value in Eq. (3). Thus we obtain the coefficients of the fit to $(\nu W_2)^{ns}$ and from this it is simple to find the fit coefficients for $(\nu W_2)^n$ since they are linearly related through Eq. (5). From $(\nu W_2)^{ns}$ and $(\nu W_2)^n$ we obtain the neutron smearing correction

$$S_n = (\nu W_2)^n / (\nu W_2)^{ns}$$

Once S_n and S_p are found as a function of Q^2, ν we do not use the fitted data any longer. We use directly the measured data and the expressions

$$\frac{(\nu W_2)^n}{(\nu W_2)^p} = \left[\frac{(\nu W_2)^d}{(\nu W_2)^p} S_p - 1 \right] \frac{S_n}{S_p} \quad (7a)$$

$$(vw_2)^p - (vw_2)^n = (vw_2)^p \left[1 + \frac{s_n}{s_p} \right] - (vw_2)^d s_n \quad (7b)$$

to obtain the physical variables of interest.

APPENDIX B

Event Ratios

Since the proton and deuteron data were taken under identical conditions^{*} Eq. (7a) of Appendix A suggests that the ratio $(vW_2)^n/(vW_2)^p$ can be obtained from a direct comparison of event rates without a detailed analysis of the data for the corresponding structure functions

$$\frac{(vW_2)^n}{(vW_2)^p} = \left| \frac{\sigma(d)}{\sigma(p)} S_p - 1 \right| \frac{S_n}{S_p}$$

Without the application of a cut in W^2 we obtain the results shown in the following Table II.

The ratio of the effective flux multiplied by the target density for the deuterium and hydrogen data was

$$R = \frac{(\text{Flux}^H \cdot \rho_H)}{[\text{Flux}^D \cdot (\rho_D/2)]} = 1.060 \pm 0.02$$

and therefore we have divided the hydrogen events in Table II by the ratio R.

As can be seen, these direct results agree, within their errors, to the more detailed calculation of Table I. The agreement is best at small values of x, but it should be remembered that the data of Table II include all values of W^2 ; they are cut for $Q^2 > 0.4$.

^{*} Only hydrogen data with S301 off were used for this comparison. The corresponding effective flux was

$$2.47 \times 10^{11} \text{ for } H_2$$

$$2.10 \times 10^{11} \text{ for } D_2$$

Table II

Event ratios for μ -p and μ -d deep inelastic scattering

$\langle x \rangle$	$N_d = N'_d$	N_p	$N'_p = N_p/1.060$	$[(N'_d/N'_p)s_p - 1](s_n/s_p)$
0.072	1038	576	542	0.91 ± 0.11
0.122	945	543	513	0.84 ± 0.10
0.173	838	510	481	0.74 ± 0.10
0.221	560	371	350	0.60 ± 0.12
0.270	452	275	260	0.74 ± 0.13
0.318	377	249	235	0.60 ± 0.13
0.375	290	173	163	0.77 ± 0.19
0.430	225	158	149	0.50 ± 0.19
0.472	160	96	91	0.76 ± 0.20
0.541	204	130	123	0.65 ± 0.30
0.6-0.7	115	74	-	-
0.7-0.8	80	34	-	-
0.8-1.0	74	37	-	-
	<hr/> 5358	<hr/> 3226		

APPENDIX C

Deuterium Structure Functions

In the following Table III we give the structure function for deuterons $(\nu W_2)^d$ and protons $(\nu W_2)^p$ as measured in this experiment with incident muons. The structure function is given as a function of the Q^2, ν bin and its error indicated. The number of events and the corresponding values of $\omega = 2M\nu/Q^2$ and $x = 1/\omega$ are also given as obtained from the distribution of events in the bin. For this reason the values of ω (or x) may occasionally be different for hydrogen and deuterium events in the same bin. The data have been radiatively corrected.

The purpose of the table is mainly for reference purposes in case a different type of analysis is required in the future.

TABLE III

Deuteron structure functions as obtained from μ -d deep inelastic scattering

ν -bin GeV	Q^2 bin (GeV/c) ²	Events	μ -d				Events	μ -p			
			$\langle x \rangle$	$\langle w \rangle$	νW_2^d	$\Delta(\nu W_2^d)$		$\langle x \rangle$	$\langle w \rangle$	νW_2^p	$\Delta(\nu W_2^p)$
***** 0.200	1.200 1.400	0.0	0.000	0.000	0.000	0.000	1.0	1.908	0.524	0.003	0.003
0.400 0.800	0.600 0.800	0.0	0.000	0.000	0.000	0.000	3.0	0.654	1.530	0.094	0.091
	0.800 1.000	15.0	0.699	1.430	0.707	0.305	19.0	0.862	1.160	0.143	0.051
	1.000 1.200	11.0	1.001	0.999	0.108	0.035	22.0	0.893	1.120	0.083	0.021
	1.200 1.400	13.0	1.086	0.921	0.081	0.025	20.0	0.980	1.020	0.053	0.013
	1.400 1.600	10.0	1.202	0.832	0.041	0.013	11.0	1.076	0.929	0.027	0.008
	1.600 1.800	5.0	1.279	0.782	0.041	0.019	2.0	1.508	0.663	0.003	0.002
	1.800 2.000	3.0	1.406	0.711	0.007	0.005	0.0	0.000	0.000	0.000	0.000
0.600 1.200	0.600 0.800	0.0	0.000	0.000	0.000	0.000	5.0	0.358	2.790	0.079	0.045
	0.800 1.000	9.0	0.481	2.080	0.145	0.056	25.0	0.450	2.220	0.204	0.054
	1.000 1.200	21.0	0.595	1.660	0.214	0.054	43.0	0.602	1.660	0.183	0.034
	1.200 1.400	27.0	0.671	1.490	0.157	0.032	33.0	0.676	1.480	0.105	0.020
	1.400 1.600	24.0	0.781	1.280	0.127	0.027	19.0	0.820	1.220	0.053	0.012
	1.600 1.800	26.0	0.893	1.120	0.123	0.025	16.0	0.877	1.140	0.048	0.011
	1.800 2.000	17.0	0.980	1.020	0.073	0.018	7.0	1.008	0.992	0.024	0.009
	2.000 2.200	9.0	1.058	0.945	0.043	0.015	6.0	0.980	1.020	0.024	0.010
	2.200 2.400	5.0	1.122	0.891	0.027	0.012	2.0	1.214	0.824	0.007	0.005
	2.400 2.600	1.0	1.527	0.655	0.014	0.014	0.0	0.000	0.000	0.000	0.000
	2.600 2.800	1.0	1.527	0.655	0.014	0.014	0.0	0.000	0.000	0.000	0.000
1.200 1.600	0.400 0.600	0.0	0.000	0.000	0.000	0.000	4.0	0.180	5.570	0.175	0.150
	0.600 0.800	8.0	0.281	3.560	0.537	0.273	27.0	0.266	3.760	0.467	0.175
	0.800 1.000	36.0	0.352	2.840	0.472	0.099	58.0	0.331	3.020	0.340	0.081
	1.000 1.200	27.0	0.412	2.430	0.219	0.046	61.0	0.407	2.460	0.250	0.038
	1.200 1.400	46.0	0.493	2.030	0.358	0.057	29.0	0.485	2.060	0.110	0.022
	1.400 1.600	29.0	0.552	1.810	0.131	0.026	28.0	0.565	1.770	0.095	0.019
	1.600 1.800	25.0	0.641	1.560	0.149	0.031	13.0	0.629	1.590	0.056	0.016
	1.800 2.000	27.0	0.725	1.380	0.128	0.027	12.0	0.746	1.380	0.049	0.014
	2.000 2.200	18.0	0.787	1.270	0.114	0.026	7.0	0.840	1.190	0.039	0.015
	2.200 2.400	13.0	0.870	1.150	0.078	0.022	4.0	0.800	1.250	0.025	0.012
	2.400 2.600	10.0	1.002	0.998	0.075	0.024	1.0	0.813	1.230	0.010	0.010
	2.600 2.800	5.0	1.003	0.997	0.047	0.021	3.0	0.917	1.090	0.030	0.017
	2.800 3.000	0.0	0.000	0.000	0.000	0.000	1.0	1.067	0.937	0.011	0.011

v-bin GeV	Q ² bin (GeV/c) ²	Events		$\mu-d$		νW_2^d	$\Delta(\nu W_2^d)$	Events		$\mu-p$		νW_2^p	$\Delta(\nu W_2^p)$
				<x>	<w>					<x>	<w>		
1.600 2.000	0.400 0.600	0.0	0.000	0.000	0.000	0.000	0.000	12.0	0.157	6.370	0.687	0.527	
	0.600 0.800	26.0	0.211	4.740	0.157	0.578	0.157	48.0	0.206	4.850	0.396	0.091	
	0.800 1.000	37.0	0.268	3.730	0.082	0.440	0.082	61.0	0.260	3.850	0.395	0.071	
	1.000 1.200	52.0	0.322	3.110	0.060	0.434	0.060	71.0	0.329	3.040	0.257	0.035	
	1.200 1.400	39.0	0.386	2.590	0.051	0.308	0.051	52.0	0.376	2.660	0.262	0.046	
	1.400 1.600	58.0	0.444	2.250	0.043	0.328	0.043	47.0	0.437	2.290	0.203	0.031	
	1.600 1.800	32.0	0.503	1.990	0.050	0.289	0.050	32.0	0.503	1.990	0.161	0.029	
	1.800 2.000	33.0	0.562	1.780	0.040	0.223	0.040	18.0	0.559	1.790	0.115	0.028	
	2.000 2.200	17.0	0.621	1.610	0.031	0.120	0.031	18.0	0.606	1.650	0.129	0.031	
	2.200 2.400	17.0	0.667	1.500	0.042	0.173	0.042	14.0	0.658	1.520	0.124	0.034	
	2.400 2.600	7.0	0.719	1.390	0.032	0.082	0.032	6.0	0.735	1.360	0.068	0.028	
	2.600 2.800	7.0	0.806	1.240	0.032	0.085	0.032	3.0	0.806	1.240	0.037	0.021	
	2.800 3.000	0.0	0.000	0.000	0.000	0.000	0.000	4.0	0.901	1.110	0.052	0.026	
	3.000 3.200	3.0	0.935	1.070	0.033	0.057	0.033	1.0	1.004	0.996	0.016	0.016	
	3.200 3.400	0.0	0.000	0.000	0.000	0.000	0.000	1.0	0.971	1.030	0.020	0.020	
2.000 2.400	0.400 0.600	11.0	0.125	8.030	0.338	0.547	0.338	12.0	0.114	8.800	0.207	0.097	
	0.600 0.800	40.0	0.172	5.830	0.160	0.753	0.160	46.0	0.167	5.990	0.273	0.055	
	0.800 1.000	60.0	0.214	4.670	0.084	0.589	0.084	60.0	0.214	4.680	0.325	0.053	
	1.000 1.200	66.0	0.264	3.790	0.060	0.463	0.060	50.0	0.265	3.770	0.273	0.043	
	1.200 1.400	61.0	0.313	3.190	0.054	0.418	0.054	66.0	0.316	3.160	0.321	0.043	
	1.400 1.600	79.0	0.362	2.760	0.060	0.542	0.060	53.0	0.361	2.770	0.280	0.041	
	1.600 1.800	49.0	0.415	2.410	0.053	0.382	0.053	45.0	0.410	2.440	0.293	0.046	
	1.800 2.000	40.0	0.459	2.180	0.049	0.320	0.049	23.0	0.457	2.190	0.173	0.037	
	2.000 2.200	23.0	0.490	2.040	0.050	0.244	0.050	31.0	0.490	2.040	0.245	0.049	
	2.200 2.400	23.0	0.556	1.800	0.051	0.243	0.051	14.0	0.556	1.800	0.138	0.040	
	2.400 2.600	7.0	0.562	1.780	0.036	0.095	0.036	7.0	0.606	1.650	0.094	0.036	
	2.600 2.800	13.0	0.654	1.530	0.057	0.194	0.057	8.0	0.641	1.560	0.142	0.051	
	2.800 3.000	9.0	0.704	1.420	0.048	0.110	0.048	0.0	0.000	0.000	0.000	0.000	
	3.000 3.200	4.0	0.746	1.340	0.146	0.297	0.146	1.0	0.800	1.250	0.021	0.021	
	3.200 3.400	0.0	0.000	0.000	0.000	0.000	0.000	2.0	0.813	1.230	0.048	0.034	
	3.600 3.800	2.0	0.840	1.190	0.045	0.061	0.045	1.0	0.901	1.110	0.025	0.025	

v-bin GeV	Q ² bin (GeV/c) ²	Events	μ -d				Events	μ -p			
			$\langle x \rangle$	$\langle w \rangle$	vW_2^d	$\Delta(vW_2^d)$		$\langle x \rangle$	$\langle w \rangle$	vW_2^p	$\Delta(vW_2^p)$
2,400 2,800	0,400 0,600	33,0	0,105	9,500	0,607	0,171	35,0	0,102	9,790	0,404	0,127
	0,600 0,800	47,0	0,145	6,910	0,518	0,086	55,0	0,139	7,210	0,339	0,062
	0,800 1,000	64,0	0,185	5,410	0,486	0,060	71,0	0,184	5,440	0,373	0,054
	1,000 1,200	80,0	0,221	4,520	0,511	0,058	69,0	0,222	4,500	0,298	0,039
	1,200 1,400	93,0	0,266	3,760	0,650	0,067	67,0	0,267	3,750	0,400	0,053
	1,400 1,600	56,0	0,310	3,230	0,394	0,052	41,0	0,301	3,320	0,206	0,040
	1,600 1,800	62,0	0,347	2,880	0,532	0,065	24,0	0,344	2,910	0,208	0,043
	1,800 2,000	41,0	0,388	2,580	0,500	0,075	31,0	0,395	2,530	0,274	0,050
	2,000 2,200	36,0	0,429	2,330	0,429	0,069	15,0	0,427	2,340	0,179	0,047
	2,200 2,400	23,0	0,467	2,140	0,305	0,063	13,0	0,461	2,170	0,186	0,052
	2,400 2,600	0,0	0,000	0,000	0,000	0,000	6,0	0,495	2,020	0,135	0,055
	2,600 2,800	0,0	0,000	0,000	0,000	0,000	6,0	0,552	1,810	0,123	0,051
	2,800 3,000	0,0	0,000	0,000	0,000	0,000	2,0	0,581	1,720	0,094	0,067
	3,000 3,200	4,0	0,667	1,500	0,053	0,038	1,0	0,641	1,560	0,028	0,028
	3,200 3,400	3,0	0,658	1,520	0,109	0,063	2,0	0,676	1,480	0,068	0,048
	3,400 3,600	5,0	0,709	1,410	0,202	0,102	2,0	0,685	1,460	0,101	0,072
	3,600 3,800	3,0	0,730	1,370	0,165	0,096	0,0	0,000	0,000	0,000	0,000
2,800 3,200	0,200 0,400	12,0	0,063	15,800	0,422	0,259	10,0	0,062	16,100	0,416	0,322
	0,400 0,600	40,0	0,093	10,800	0,506	0,106	36,0	0,089	11,200	0,336	0,090
	0,600 0,800	62,0	0,125	7,980	0,494	0,068	67,0	0,126	7,950	0,270	0,040
	0,800 1,000	81,0	0,161	6,220	0,496	0,056	77,0	0,160	6,250	0,319	0,042
	1,000 1,200	86,0	0,196	5,110	0,492	0,054	59,0	0,194	5,150	0,294	0,041
	1,200 1,400	73,0	0,231	4,320	0,475	0,056	45,0	0,227	4,410	0,254	0,040
	1,400 1,600	75,0	0,269	3,720	0,594	0,067	41,0	0,267	3,740	0,310	0,050
	1,600 1,800	46,0	0,302	3,310	0,402	0,059	36,0	0,300	3,330	0,317	0,054
	1,800 2,000	38,0	0,337	2,970	0,519	0,086	30,0	0,336	2,980	0,342	0,060
	2,000 2,200	33,0	0,373	2,680	0,527	0,088	12,0	0,380	2,630	0,223	0,067
	2,200 2,400	11,0	0,410	2,440	0,257	0,077	18,0	0,410	2,440	0,309	0,074
	2,400 2,600	0,0	0,000	0,000	0,000	0,000	5,0	0,437	2,290	0,124	0,056
	2,600 2,800	0,0	0,000	0,000	0,000	0,000	3,0	0,467	2,140	0,145	0,084
	2,800 3,000	0,0	0,000	0,000	0,000	0,000	3,0	0,498	2,010	0,105	0,061
	3,000 3,200	0,0	0,000	0,000	0,000	0,000	2,0	0,556	1,800	0,165	0,117
	3,200 3,400	0,0	0,000	0,000	0,000	0,000	7,0	0,599	1,670	0,325	0,124
	3,400 3,600	7,0	0,617	1,620	0,374	0,153	2,0	0,654	1,530	0,136	0,096
	3,600 3,800	0,0	0,000	0,000	0,000	0,000	1,0	0,649	1,540	0,065	0,065
	3,800 4,000	1,0	0,671	1,490	0,305	0,305	2,0	0,671	1,490	0,171	0,122

v-bin GeV	Q ² bin (GeV/c) ²	Events	μ-d				Events	μ-p			
			<x>	<ω>	vW ₂ ^d	Δ(vW ₂ ^d)		<x>	<ω>	vW ₂ ^p	Δ(vW ₂ ^p)
3,200 3,600	0,200 0,400	15,0	0,055	18,200	0,523	0,245	18,0	0,053	19,000	0,533	0,323
	0,400 0,600	93,0	0,079	12,700	0,717	0,095	53,0	0,076	13,100	0,249	0,047
	0,600 0,800	77,0	0,109	9,190	0,536	0,063	69,0	0,109	9,150	0,355	0,053
	0,800 1,000	99,0	0,139	7,220	0,557	0,057	74,0	0,139	7,170	0,355	0,047
	1,000 1,200	88,0	0,172	5,810	0,603	0,063	72,0	0,171	5,850	0,330	0,042
	1,200 1,400	68,0	0,202	4,950	0,526	0,063	51,0	0,202	4,950	0,389	0,058
	1,400 1,600	54,0	0,234	4,270	0,482	0,064	45,0	0,236	4,240	0,380	0,059
	1,600 1,800	44,0	0,267	3,750	0,578	0,083	22,0	0,265	3,770	0,267	0,058
	1,800 2,000	31,0	0,298	3,360	0,446	0,080	23,0	0,298	3,360	0,314	0,067
	2,000 2,200	32,0	0,330	3,030	0,598	0,102	15,0	0,333	3,000	0,272	0,071
	2,200 2,400	19,0	0,360	2,780	0,423	0,100	12,0	0,358	2,790	0,293	0,086
	2,400 2,600	0,0	0,000	0,000	0,000	0,000	9,0	0,388	2,580	0,267	0,090
	2,600 2,800	0,0	0,000	0,000	0,000	0,000	8,0	0,427	2,340	0,289	0,103
	2,800 3,000	0,0	0,000	0,000	0,000	0,000	2,0	0,467	2,140	0,151	0,107
	3,000 3,200	0,0	0,000	0,000	0,000	0,000	3,0	0,488	2,050	0,224	0,129
	3,200 3,400	0,0	0,000	0,000	0,000	0,000	4,0	0,503	1,990	0,313	0,158
	3,400 3,600	3,0	0,552	1,810	0,820	0,076	5,0	0,535	1,870	0,455	0,206
	3,600 3,800	5,0	0,578	1,730	0,494	0,247	1,0	0,606	1,650	0,148	0,149
3,600 4,000	0,200 0,400	27,0	0,046	21,900	0,544	0,175	31,0	0,044	22,500	0,559	0,259
	0,400 0,600	82,0	0,071	14,100	0,449	0,064	51,0	0,071	14,100	0,325	0,063
	0,600 0,800	99,0	0,099	10,100	0,528	0,053	74,0	0,097	10,300	0,321	0,044
	0,800 1,000	104,0	0,124	8,060	0,630	0,062	68,0	0,126	7,920	0,339	0,045
	1,000 1,200	104,0	0,153	6,540	0,659	0,063	58,0	0,155	6,460	0,331	0,046
	1,200 1,400	49,0	0,181	5,530	0,554	0,076	42,0	0,182	5,490	0,382	0,062
	1,400 1,600	50,0	0,209	4,780	0,567	0,078	36,0	0,209	4,780	0,350	0,060
	1,600 1,800	38,0	0,240	4,160	0,556	0,087	26,0	0,239	4,190	0,384	0,077
	1,800 2,000	32,0	0,265	3,770	0,581	0,100	19,0	0,265	3,780	0,352	0,082
	2,000 2,200	21,0	0,295	3,390	0,551	0,119	6,0	0,299	3,350	0,144	0,059
	2,200 2,400	16,0	0,323	3,100	0,463	0,111	5,0	0,323	3,100	0,260	0,117
	2,400 2,600	0,0	0,000	0,000	0,000	0,000	6,0	0,351	2,850	0,243	0,100
	2,600 2,800	0,0	0,000	0,000	0,000	0,000	7,0	0,372	2,690	0,516	0,121
	2,800 3,000	0,0	0,000	0,000	0,000	0,000	2,0	0,395	2,530	0,202	0,144
	3,000 3,200	0,0	0,000	0,000	0,000	0,000	2,0	0,427	2,340	0,167	0,119
	3,200 3,400	2,0	0,450	2,220	0,558	0,396	0,0	0,000	0,000	0,000	0,000
	3,400 3,600	4,0	0,490	2,040	0,693	0,363	2,0	0,476	2,100	0,523	0,231
	3,600 3,800	2,0	0,538	1,860	0,364	0,267	1,0	0,518	1,930	0,177	0,178
	3,800 4,000	1,0	0,532	1,880	0,835	0,838	1,0	0,556	1,800	0,252	0,254

v-bin GeV	Q ² bin (GeV/c) ²	Events	μ-d		vW ₂ ^d	Δ(vW ₂ ^d)	Events	μ-p		vW ₂ ^p	Δ(vW ₂ ^p)
			<x>	<ω>				<x>	<ω>		
4.000 4.400	0.200 0.400	32.0	0.043	23.100	0.743	0.254	27.0	0.042	23.900	0.656	0.330
	0.400 0.600	83.0	0.063	15.900	0.501	0.060	66.0	0.063	15.900	0.283	0.045
	0.600 0.800	112.0	0.088	11.400	0.573	0.057	63.0	0.089	11.200	0.273	0.039
	0.800 1.000	81.0	0.112	8.890	0.496	0.055	50.0	0.113	8.820	0.260	0.039
	1.000 1.200	72.0	0.137	7.290	0.571	0.066	48.0	0.138	7.270	0.362	0.056
	1.200 1.400	65.0	0.165	6.060	0.629	0.076	26.0	0.162	6.160	0.298	0.060
	1.400 1.600	49.0	0.190	5.260	0.677	0.086	21.0	0.190	5.250	0.281	0.063
	1.600 1.800	32.0	0.212	4.720	0.552	0.096	16.0	0.217	4.600	0.252	0.064
	1.800 2.000	19.0	0.240	4.160	0.477	0.106	15.0	0.236	4.230	0.323	0.085
	2.000 2.200	24.0	0.269	3.720	0.663	0.129	9.0	0.262	3.820	0.312	0.106
	2.200 2.400	8.0	0.295	3.390	0.452	0.159	9.0	0.290	3.450	0.356	0.120
	2.600 2.800	0.0	0.000	0.000	0.000	0.000	7.0	0.339	2.950	0.334	0.129
	2.800 3.000	0.0	0.000	0.000	0.000	0.000	3.0	0.365	2.740	0.350	0.204
	3.000 3.200	0.0	0.000	0.000	0.000	0.000	1.0	0.379	2.640	0.150	0.150
	3.400 3.600	5.0	0.448	2.230	1.390	0.630	1.0	0.463	2.160	0.276	0.278
	3.600 3.800	2.0	0.455	2.200	0.827	0.597	2.0	0.463	2.160	0.837	0.603
4.400 4.800	0.200 0.400	32.0	0.040	24.900	0.919	0.294	27.0	0.038	26.100	1.200	0.794
	0.400 0.600	77.0	0.057	17.400	0.429	0.047	52.0	0.059	17.000	0.224	0.037
	0.600 0.800	89.0	0.080	12.500	0.509	0.056	66.0	0.080	12.500	0.319	0.044
	0.800 1.000	72.0	0.104	9.650	0.557	0.063	48.0	0.105	9.500	0.277	0.042
	1.000 1.200	75.0	0.127	7.880	0.737	0.084	39.0	0.126	7.930	0.327	0.055
	1.200 1.400	57.0	0.151	6.640	0.734	0.095	29.0	0.151	6.620	0.365	0.071
	1.400 1.600	39.0	0.175	5.720	0.731	0.112	20.0	0.170	5.880	0.301	0.079
	1.600 1.800	22.0	0.196	5.090	0.493	0.104	11.0	0.193	5.170	0.267	0.082
	1.800 2.000	17.0	0.219	4.570	0.571	0.133	10.0	0.217	4.610	0.336	0.108
	2.000 2.200	12.0	0.248	4.030	0.526	0.155	8.0	0.241	4.150	0.397	0.143
	2.200 2.400	9.0	0.264	3.790	0.619	0.200	5.0	0.265	3.780	0.322	0.146
	2.400 2.600	0.0	0.000	0.000	0.000	0.000	2.0	0.289	3.460	0.203	0.144
	2.600 2.800	0.0	0.000	0.000	0.000	0.000	3.0	0.310	3.230	0.339	0.198
	3.000 3.200	0.0	0.000	0.000	0.000	0.000	1.0	0.357	2.800	0.233	0.234
	3.200 3.400	3.0	0.386	2.590	1.140	0.667	0.0	0.000	0.000	0.000	0.000
	3.400 3.600	3.0	0.398	2.510	1.800	1.050	1.0	0.397	2.520	0.746	0.755
	3.600 3.800	2.0	0.437	2.290	1.840	0.773	0.0	0.000	0.000	0.000	0.000
	3.800 4.000	2.0	0.441	2.270	2.510	1.870	0.0	0.000	0.000	0.000	0.000

v-bin GeV	Q ² bin (GeV/c) ²	Events	u-d		vW ₂ ^d	Δ(vW ₂ ^d)	Events	u-p		vW ₂ ^p	Δ(vW ₂ ^p)
			<x>	<u>				<x>	<u>		
4.800 5.200	0.200 0.400	21.0	0.036	27.700	1.830	0.867	11.0	0.035	28.700	0.514	0.324
	0.400 0.600	71.0	0.054	18.600	0.548	0.064	42.0	0.055	18.300	0.294	0.056
	0.600 0.800	85.0	0.074	13.500	0.662	0.074	44.0	0.072	13.800	0.293	0.049
	0.800 1.000	58.0	0.095	10.500	0.538	0.070	37.0	0.096	10.400	0.328	0.058
	1.000 1.200	57.0	0.117	8.530	0.801	0.103	23.0	0.117	8.560	0.288	0.063
	1.200 1.400	45.0	0.139	7.220	0.798	0.114	26.0	0.140	7.120	0.373	0.077
	1.400 1.600	26.0	0.159	6.280	0.664	0.125	23.0	0.158	6.330	0.307	0.076
	1.600 1.800	28.0	0.182	5.490	0.744	0.131	5.0	0.183	5.460	0.314	0.142
	1.800 2.000	14.0	0.204	4.900	0.785	0.200	8.0	0.204	4.900	0.350	0.127
	2.000 2.200	0.0	0.000	0.000	0.000	0.000	3.0	0.223	4.490	0.236	0.138
	2.200 2.400	3.0	0.242	4.130	0.641	0.342	3.0	0.254	3.940	0.315	0.184
	2.400 2.600	0.0	0.000	0.000	0.000	0.000	2.0	0.263	3.800	0.329	0.235
	2.600 2.800	0.0	0.000	0.000	0.000	0.000	1.0	0.288	3.470	0.203	0.204
	2.800 3.000	4.0	0.316	3.160	1.370	0.704	1.0	0.302	3.310	0.322	0.325
	3.000 3.200	1.0	0.341	2.930	1.730	1.750	1.0	0.340	2.940	0.756	0.768
5.200 5.600	0.200 0.400	10.0	0.037	26.900	0.664	0.624	3.0	0.036	28.100	0.248	0.229
	0.400 0.600	59.0	0.056	20.200	0.737	0.107	21.0	0.050	20.000	0.330	0.095
	0.600 0.800	55.0	0.067	14.900	0.693	0.096	17.0	0.068	14.600	0.210	0.056
	0.800 1.000	52.0	0.088	11.400	0.766	0.106	22.0	0.088	11.400	0.305	0.070
	1.000 1.200	43.0	0.108	9.230	0.804	0.115	18.0	0.108	9.230	0.355	0.088
	1.200 1.400	23.0	0.127	7.880	0.663	0.134	13.0	0.127	7.850	0.348	0.100
	1.400 1.600	19.0	0.151	6.640	0.664	0.148	3.0	0.145	6.900	0.213	0.124
	1.600 1.800	11.0	0.168	5.940	0.671	0.202	5.0	0.170	5.880	0.297	0.135
	1.800 2.000	7.0	0.190	5.270	0.637	0.244	3.0	0.184	5.430	0.326	0.191
	2.000 2.200	3.0	0.208	4.810	0.724	0.385	2.0	0.210	4.770	0.269	0.192
	2.200 2.400	9.0	0.228	4.390	2.170	0.748	0.0	0.000	0.000	0.000	0.000
	2.400 2.600	0.0	0.000	0.000	0.000	0.000	2.0	0.243	4.120	0.719	0.522
	2.600 2.800	1.0	0.260	3.840	1.180	1.190	0.0	0.000	0.000	0.000	0.000
	2.800 3.000	0.0	0.000	0.000	0.000	0.000	1.0	0.279	3.590	0.735	0.750
	3.200 3.400	1.0	0.326	3.070	6.110	6.290	0.0	0.000	0.000	0.000	0.000
	3.400 3.600	2.0	0.351	2.850	9.620	7.080	0.0	0.000	0.000	0.000	0.000

v-bin GeV	Q ² bin (GeV/c) ²	Events		μ -d		$\Delta(\nu W_2^d)$	Events	μ -p		νW_2^p	$\Delta(\nu W_2^p)$
		<x>	<y>	<x>	<y>			<x>	<y>		
5.600 6.000	0.400 0.600	22.0	0.049	20.500	0.719	0.178	13.0	0.047	21.100	0.362	0.126
	0.600 0.800	16.0	0.063	16.000	0.600	0.150	11.0	0.065	15.400	0.396	0.139
	0.800 1.000	16.0	0.081	12.400	0.409	0.204	10.0	0.085	11.800	0.289	0.098
	1.000 1.200	15.0	0.101	9.900	0.894	0.201	8.0	0.102	9.790	0.363	0.135
	1.200 1.400	8.0	0.116	8.430	0.739	0.244	4.0	0.116	8.640	0.292	0.151
	1.400 1.600	7.0	0.136	7.580	0.910	0.318	3.0	0.135	7.420	0.208	0.122
	1.600 1.800	10.0	0.155	6.450	1.490	0.489	2.0	0.160	6.240	0.254	0.183
	1.800 2.000	5.0	0.173	5.780	1.110	0.552	2.0	0.179	5.580	0.411	0.296
	2.000 2.200	2.0	0.182	5.500	0.537	0.401	1.0	0.196	5.090	0.422	0.429
	2.200 2.400	0.0	0.000	0.000	0.000	0.000	2.0	0.210	4.760	1.130	0.826
	2.400 2.600	4.0	0.228	4.390	3.530	1.860	0.0	0.000	0.000	0.000	0.000
	2.600 2.800	1.0	0.248	4.030	3.760	3.860	0.0	0.000	0.000	0.000	0.000
	3.000 3.200	2.0	0.282	3.550	12.900	9.690	0.0	0.000	0.000	0.000	0.000
6.000 6.400	0.400 0.600	16.0	0.045	22.200	0.928	0.285	5.0	0.042	23.600	0.317	0.310
	0.600 0.800	13.0	0.062	16.200	0.684	0.220	4.0	0.058	17.100	0.353	0.200
	0.800 1.000	14.0	0.077	13.000	0.764	0.221	3.0	0.076	13.200	0.177	0.107
	1.000 1.200	5.0	0.096	10.400	0.625	0.289	3.0	0.094	10.600	0.279	0.168
	1.200 1.400	9.0	0.109	9.160	0.742	0.306	1.0	0.107	9.360	0.105	0.106
	1.400 1.600	6.0	0.132	7.580	1.170	0.555	2.0	0.134	7.490	0.578	0.427
	1.600 1.800	3.0	0.149	6.730	0.796	0.469	2.0	0.141	7.070	0.492	0.368
	1.800 2.000	0.0	0.000	0.000	0.000	0.000	1.0	0.158	6.330	1.550	1.680
	2.000 2.200	4.0	0.180	5.550	3.310	1.860	0.0	0.000	0.000	0.000	0.000
	2.200 2.400	1.0	0.196	5.100	3.410	3.410	0.0	0.000	0.000	0.000	0.000
	2.400 2.600	2.0	0.220	4.540	6.330	4.780	3.0	0.220	4.540	9.910	7.220
	2.600 3.000	0.0	0.000	0.000	0.000	0.000	1.0	0.258	3.870	3.160	3.360
6.400 6.800	0.600 0.800	3.0	0.056	17.300	0.464	0.315	2.0	0.057	17.600	1.490	1.580
	0.800 1.000	9.0	0.072	13.900	1.880	0.720	1.0	0.067	14.900	0.183	0.193
	1.000 1.200	2.0	0.093	10.800	0.633	0.474	1.0	0.081	12.400	0.318	0.335
	1.200 1.400	2.0	0.108	9.260	3.030	2.330	1.0	0.108	9.260	0.265	0.272
	1.400 1.600	2.0	0.119	8.390	2.920	2.200	0.0	0.000	0.000	0.000	0.000
	1.600 2.000	0.0	0.000	0.000	0.000	0.000	1.0	0.163	6.130	0.688	0.714
6.800 7.200	0.400 0.600	2.0	0.043	23.100	2.220	2.040	0.0	0.000	0.000	0.000	0.000
	0.600 0.800	4.0	0.058	17.200	1.450	0.993	1.0	0.052	19.100	0.296	0.328
	0.800 1.000	4.0	0.074	13.500	3.700	2.170	0.0	0.000	0.000	0.000	0.000
	1.000 1.200	4.0	0.087	11.500	3.294	2.070	1.0	0.079	12.600	1.770	2.440
	2.000 2.200	2.0	0.152	6.570	19.500	18.200	0.0	0.000	0.000	0.000	0.000