ОБЪЕДИНЕННЫЙ ИНСТИТУТ ЯДЕРНЫХ ИССЛЕДОВАНИЙ

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DIFFERENTIAL CROSS SECTIONS OF THE ELASTIC p-d SCATTERING IN THE ENERGY RANGE OF 10-70 GEV

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S u m m a r y

In this paper we present the tables of the absolute differential cross-sections of the elastic p-d scattering. The cross-section data have been obtained at Serpukhov accelerator over 10 to 70 GeV in the t-range of 0.002 - 0.2 GeV^2/c^2.

The elastic $p-d$ scattering amplitude was parametrized as:

$$A(t) = \left(\frac{d\sigma}{dt}\right)^{1/2}_{\text{opt}} (i + a) \cdot \exp[1/2(Bt + Ct^2)] .$$

The values $a = \dfrac{Re\,A(0)}{Im\,A(0)}$, B and C are presented in these tables also.

This paper presents the differential cross sections of the elastic $p-d$ scattering obtained in two independent sets of measurements. The experiments have been carried out at the Serpukhov accelerator by the method in which multiple passages of an internal beam of the circular accelerator through a thin target were used[1]. Deuterium supersonig jet was used as the internal target of the accelerator. The gas target and the equipment are described in ref.[2]. The recoil particles were registered and their angle and energy were measured using a system of semiconductor detectors and on-line computer.

The first part of the measurements covers the momentum transfer squared range of $0.02 \le |t| \le 0.2$ (GeV/c)^2. One example of differential cross sections of this series is shown in fig. 1.

The elastic $p-d$ scattering amplitude in this t-interval was parametrized as:

$$A(t) = \left(\frac{d\sigma}{dt}\right)^{1/2}_{opt} \cdot (i + a) \cdot \exp[1/2(Bt + Ct^2)].$$

The method and results of the measurements of the parameters B and C have been published in ref.[3].

The second set of the measurements was performed in the t -interval of $0.002 \leq |t| \leq 0.05$ $(GeV/c)^2$. From this experiment the ratio of the real to the imaginary part of the elastic $p-d$ scattering amplitude $\alpha = \frac{Re A(0)}{Im A(0)}$ and B , only, were determined in[3] using Bethe formula[4].

Figure 2 presents the differential cross sections of this series. It is possible to see here the constructive interference effect between Coulomb and nuclear scattering.

In both the sets of the measurements the differential cross sections were obtained in relative units.The way of determination of the absolute elastic $p-d$ scattering differential cross sections using the Serpukhov[5] total cross section data, is described in ref.[6]. The accuracy of the absolute normalization was ~ 3%.

The tables with index* present the data from the first set only, the tables with** - from the second set of measurements. In those cases when the energy of the primary beam differed not more than by 1.5 GeV the data of both the sets were joined. These tables are denoted by index***.

Figure 3 illustrates the differential cross section in the interval of $0.002 \leq |t| \leq 0.2$ $(GeV/c)^2$.

In front of each table the momentum P in the lab. system, at which the measurements have been performed and the values of α , B and C are given. These values are presented with statistical errors only.

The important sources of the systematic errors are: the uncertainty of the sensitive area of semiconductor detectors (which results in a cross section error ~ 1%), the uncertainty of the detector coordinates and apparatus mistakes (~ 1%) connnected with overloading of the electronics. The root mean square systematic errors are $\Delta B = \pm 0.7\ (GeV/c)^{-2}$ and $\Delta a = \pm 0.065$.

The following designations are used in the tables:

t is the four-momentum transfer squired in $(GeV/c)^2$;

$\frac{d\sigma}{dt}$ is the elastic scattering differential cross section in $mb/(GeV/c)^2$.

$\Delta(\frac{d\sigma}{dt})$ is the absolute statistical error in $mb/(GeV/c)^2$.

The presented tables of the differential cross sections can be used for an analysis of experimental data by different theoretical models.

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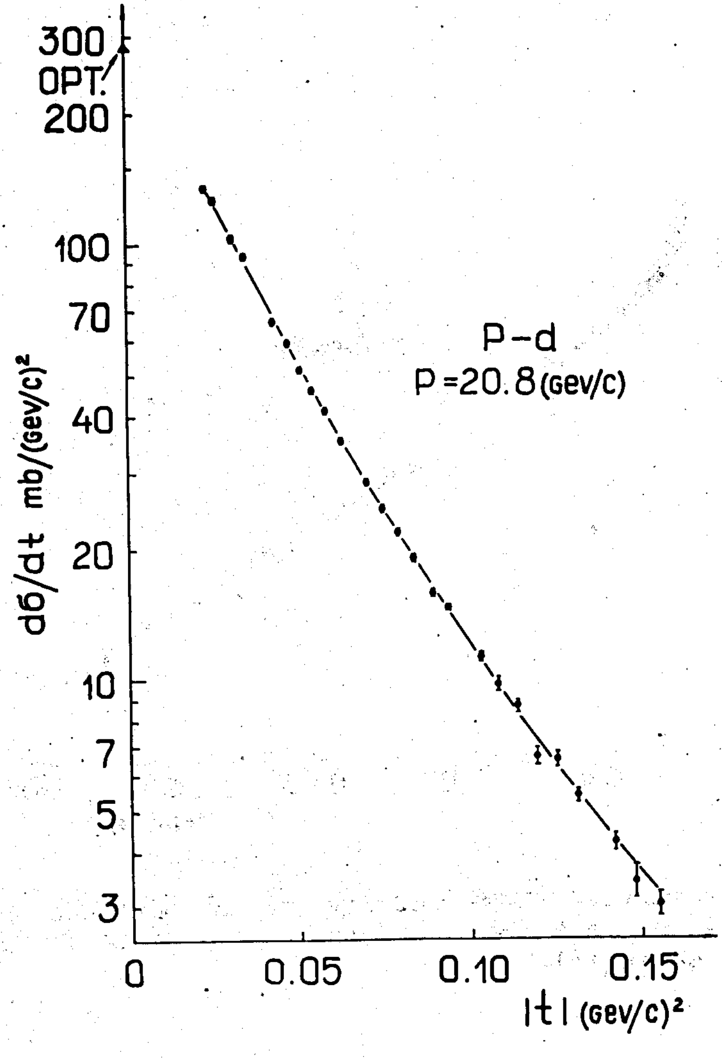

Fig. 1. Differential cross sections of the elastic $p-d$ scattering at p =20.8 GeV/c (0.02 $\leq |t| \leq$ 0.15 $(\mathrm{GeV/c})^2$) (the first series*).

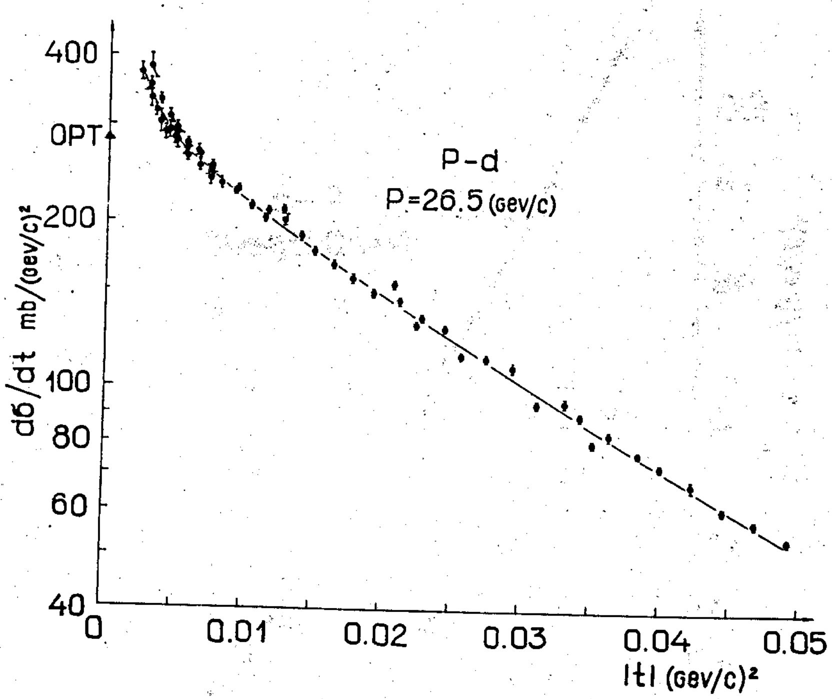

Fig. 2. Differential cross sections of the elastic $p-d$ scattering at P =26.5 GeV/c $(0.002 \leq |t| \leq 0.05\ (\mathrm{GeV/c})^2)$ (the second series**).

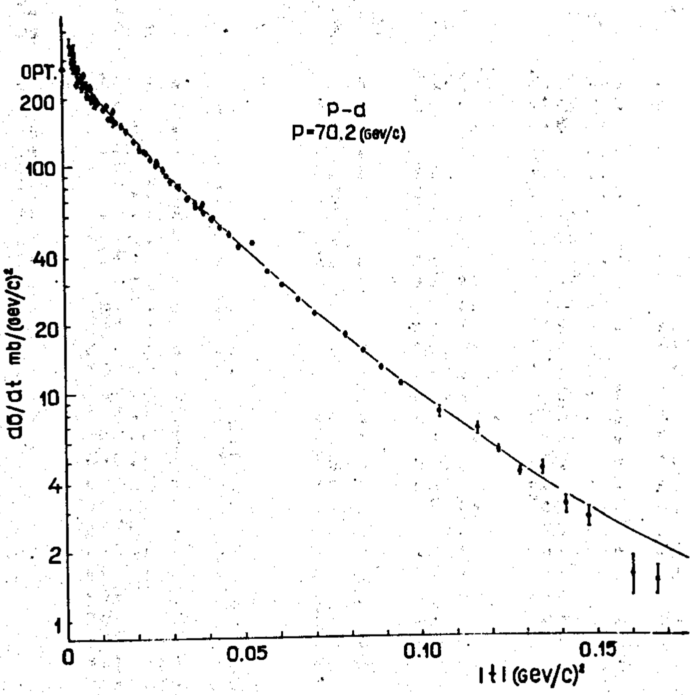

Fig. 3. Differential cross sections of the elastic $p-d$ scattering at $p = 70.2$ GeV/c ($0.002 \le |t| \le 0.16$ (GeV/c)^2) (the third series***).

* P=14.4GEV/C

B=39.5+/-0.7(C/GEV)**2
C=62.9+/-5.0(C/GEV)**4

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.02136	146.85	2.35
2	0.02630	121.22	1.53
3	0.02896	110.51	1.56
4	0.03176	99.39	1.43
5	0.03467	89.95	1.24
6	0.04024	70.65	1.23
7	0.04691	56.25	0.88
8	0.05044	49.87	0.94
9	0.05410	45.87	0.84
10	0.05787	40.01	0.70
11	0.06499	31.81	0.91
12	0.06912	27.15	0.82
13	0.07338	26.07	0.61
14	0.07776	22.59	0.74
15	0.08227	18.73	0.77
16	0.08675	11.88	2.09
17	0.08690	17.89	0.53
18	0.08951	12.80	2.05
19	0.09554	15.15	0.75
20	0.10563	11.16	0.56
21	0.11620	8.48	0.60
22	0.12168	6.72	0.46
23	0.13764	4.67	0.30
24	0.14358	3.82	0.30
25	0.14964	3.04	0.33
26	0.15582	2.89	0.34
27	0.16212	2.42	0.26

P=47.2GEV/C

B=39.2+/-0.6(C/GEV)**2
C=66.5+/-3.8(C/GEV)**4

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.02530	112.55	1.43
2	0.02815	101.01	1.33
3	0.03115	91.03	1.11
4	0.03431	80.63	1.19
5	0.03761	72.92	0.96
6	0.04106	63.76	0.94
7	0.04765	48.57	0.78
8	0.05153	42.87	0.71
9	0.05555	37.47	0.58
10	0.05973	33.31	0.60
11	0.06405	28.93	0.50
12	0.06852	25.57	0.46
13	0.07694	19.63	0.45
14	0.08182	17.09	0.40
15	0.08686	14.86	0.34
16	0.09204	12.98	0.38
17	0.09737	10.95	0.30
18	0.11306	7.22	0.35
19	0.11895	6.71	0.33
20	0.12498	5.80	0.28
21	0.13115	4.98	0.30
22	0.13748	3.92	0.22
23	0.14394	3.52	0.23
24	0.15593	2.29	0.22
25	0.16280	1.87	0.22
26	0.16981	1.40	0.23
27	0.17696	1.41	0.21
28	0.18425	0.93	0.21
29	0.19169	0.91	0.23

** P=11.2GEV/C

α=-0.288+/-0.054

N	−t	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00194	395.86	25.82
2	0.00241	400.49	20.75
3	0.00252	332.66	26.18
4	0.00292	378.62	13.01
5	0.00305	345.17	11.44
6	0.00363	342.37	10.68
7	0.00381	338.04	14.54
8	0.00411	331.53	7.04
9	0.00446	306.22	9.04
10	0.00479	306.92	6.52
11	0.00515	280.96	8.29
12	0.00551	289.77	4.48
13	0.00628	282.14	6.66
14	0.00670	270.42	5.46
15	0.00691	275.90	5.72
16	0.00755	255.13	4.68
17	0.00778	259.64	5.43
18	0.00845	241.51	4.45
19	0.00869	256.39	5.92
20	0.00966	239.59	4.90
21	0.01017	231.95	3.73
22	0.01122	212.68	4.58
23	0.01174	224.64	4.79
24	0.01231	218.30	4.72
25	0.01260	215.28	4.37
26	0.01375	200.80	4.13
27	0.01496	186.28	4.28
28	0.01689	176.17	4.16
29	0.01762	174.71	3.45
30	0.01822	164.46	3.51
31	0.01904	156.92	3.49
32	0.01961	158.64	3.41
33	0.02046	164.70	3.53
34	0.02159	150.37	3.11
35	0.02309	140.01	2.93
36	0.02465	129.19	3.04
37	0.02711	123.29	2.97
38	0.02867	115.81	2.33
39	0.02879	111.91	2.44
40	0.03040	108.97	2.46
41	0.03053	105.96	2.28
42	0.03220	102.40	2.28
43	0.03360	97.50	2.07
44	0.03540	91.39	1.97
45	0.03740	85.55	2.07
46	0.04040	77.21	1.92
47	0.04250	72.06	1.62
48	0.04460	67.16	1.54

P=15.9GEV/C

α=-0.323+/-0.052

N	−t	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00211	415.24	25.90
2	0.00262	384.16	16.13
3	0.00292	362.58	12.25
4	0.00319	373.82	12.83
5	0.00352	349.04	7.04
6	0.00398	327.01	8.63
7	0.00417	328.16	6.98
8	0.00449	320.33	5.88
9	0.00468	306.05	8.17
10	0.00522	298.87	5.43
11	0.00542	288.07	8.36
12	0.00546	312.28	8.87
13	0.00601	293.01	5.67
14	0.00627	282.93	5.56
15	0.00709	274.81	4.46
16	0.00713	282.73	6.03
17	0.00754	268.28	5.44
18	0.00800	253.50	4.23
19	0.00849	258.79	5.38
20	0.00897	243.28	4.42
21	0.00949	248.96	5.69
22	0.01083	228.41	4.26
23	0.01089	233.53	4.67
24	0.01193	211.57	4.12
25	0.01201	220.11	4.12
26	0.01320	207.19	4.37
27	0.01376	206.87	4.13
28	0.01502	191.74	3.95
29	0.01634	182.28	4.15
30	0.01809	170.08	3.14
31	0.01954	159.34	3.06
32	0.01978	164.37	3.32
33	0.02104	151.83	3.27
34	0.02129	152.20	2.89
35	0.02285	146.08	3.12
36	0.02359	139.73	2.85
37	0.02523	133.13	2.80
38	0.02694	124.66	2.90
39	0.02917	110.00	2.10
40	0.03100	103.08	2.04
41	0.03193	104.89	2.18
42	0.03289	98.08	2.19
43	0.03384	98.09	1.91
44	0.03581	91.61	2.03
45	0.03673	38.74	1.84
46	0.03875	32.70	1.81
47	0.04089	76.96	1.88
48	0.04364	70.11	1.39
49	0.04587	65.04	1.33
50	0.04816	60.27	1.39

** P=26.5GEV/C

α=-0.269+/-0.043

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00230	373.88	13.30
2	0.00286	354.11	11.07
3	0.00302	354.35	12.04
4	0.00348	317.48	9.53
5	0.00366	325.56	7.79
6	0.00412	289.12	8.51
7	0.00435	302.64	6.99
8	0.00485	283.94	8.65
9	0.00490	288.97	6.34
10	0.00569	273.96	5.05
11	0.00574	263.66	6.15
12	0.00656	260.57	4.77
13	0.00660	265.56	6.44
14	0.00743	243.11	4.27
15	0.00753	253.45	5.76
16	0.00823	235.20	5.11
17	0.00926	226.52	4.85
18	0.00944	228.96	5.90
19	0.01035	214.87	4.64
20	0.01144	202.54	4.30
21	0.01156	210.55	4.52
22	0.01265	211.27	4.85
23	0.01278	202.33	4.23
24	0.01405	188.08	4.22
25	0.01501	177.01	3.79
26	0.01639	168.34	3.56
27	0.01783	158.26	3.40
28	0.01925	149.44	3.10
29	0.02081	154.68	3.63
30	0.02115	143.57	3.13
31	0.02243	128.91	2.93
32	0.02279	134.06	2.87
33	0.02448	127.78	2.93
34	0.02574	114.40	2.52
35	0.02754	112.80	2.44
36	0.02940	109.35	2.40
37	0.03122	93.83	2.02
38	0.03319	94.93	2.29
39	0.03431	89.54	2.02
40	0.03523	79.72	1.87
41	0.03638	83.26	1.85
42	0.03851	77.30	1.85
43	0.04009	73.16	1.67
44	0.04233	67.73	1.53
45	0.04463	62.62	1.45
46	0.04686	58.04	1.27
47	0.04928	53.50	1.31

P=34.8GEV/C

α=-0.221+/-0.036

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00191	368.30	19.99
2	0.00243	333.63	9.81
3	0.00274	347.05	10.33
4	0.00301	330.99	21.06
5	0.00336	297.00	11.89
6	0.00398	281.62	9.12
7	0.00404	292.83	11.26
8	0.00437	292.91	5.71
9	0.00472	271.03	7.79
10	0.00514	274.56	5.07
11	0.00540	271.59	8.87
12	0.00552	272.49	7.82
13	0.00597	255.24	4.68
14	0.00625	254.62	5.18
15	0.00717	237.44	4.52
16	0.00731	230.62	4.04
17	0.00761	237.11	4.57
18	0.00829	226.43	4.04
19	0.00861	231.61	4.48
20	0.00934	221.32	3.94
21	0.00968	215.45	4.39
22	0.01110	194.61	3.50
23	0.01136	194.46	3.96
24	0.01240	193.61	3.58
25	0.01259	189.66	3.95
26	0.01368	179.81	3.34
27	0.01387	185.70	3.95
28	0.01428	176.76	3.35
29	0.01565	164.45	3.16
30	0.01708	157.98	3.18
31	0.01930	142.42	2.86
32	0.02083	135.67	2.47
33	0.02088	137.36	2.85
34	0.02247	127.58	2.41
35	0.02499	116.29	2.26
36	0.02679	108.87	2.15
37	0.02865	101.73	2.12
38	0.03150	91.80	1.92
39	0.03352	85.42	1.87
40	0.03413	84.30	1.58
41	0.03560	79.35	1.77
42	0.03623	79.10	1.55
43	0.03840	71.08	1.41
44	0.03941	68.50	1.43
45	0.04166	64.04	1.33
46	0.04398	60.85	1.33
47	0.04750	55.99	1.20
48	0.04998	52.26	1.16

** P=48.9GEV/C

α=-0.156+/-0.047

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00245	319.87	16,33
2	0.00304	316.80	10,48
3	0.00370	293.38	11,41
4	0.00420	276.74	8,90
5	0.00497	262.74	8,34
6	0.00521	246.11	5,52
7	0.00580	231.88	7,49
8	0.00606	247.80	4,57
9	0.00698	234.01	4,88
10	0.00766	235.22	4,71
11	0.00868	214.77	4,32
12	0.00877	209.93	5,52
13	0.00977	199.59	4,01
14	0.00986	206.41	4,47
15	0.01102	198.71	4,98
16	0.01187	199.55	4,84
17	0.01314	174.44	4,26
18	0.01447	167.62	4,09
19	0.01598	154.60	4,02
20	0.01745	155.54	3,33
21	0.01898	139.20	3,52
22	0.02009	135.71	3,32
23	0.02173	128.28	3,17
24	0.02741	97.86	2,64
25	0.02832	100.12	2,21
26	0.03130	89.84	2,34
27	0.03272	85.79	2,18
28	0.03481	76.62	1,96
29	0.03696	72.06	1,82
30	0.04269	62.39	1,74
31	0.04507	57.43	1,33
32	0.04752	52.79	1,45
33	0.04927	49.72	1,31

P=57.2GEV/C

α=-0.215+/-0.040

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00248	349.18	8.43
2	0.00308	315.13	16.76
3	0.00343	281.63	6.18
4	0.00374	289.02	9.40
5	0.00413	272.18	6.14
6	0.00438	273.24	7.42
7	0.00490	258.47	5.11
8	0.00517	249.21	7.16
9	0.00527	262.17	4.87
10	0.00613	255.23	4.83
11	0.00642	235.89	5.23
12	0.00705	228.90	4,69
13	0.00736	219.10	4,31
14	0.00793	225.24	3,85
15	0.00886	222.30	4,80
16	0.00898	218.29	3,93
17	0.00938	213.47	4.72
18	0.00997	208.87	4.71
19	0.01009	202.56	5.56
20	0.01114	197.71	4,90
21	0.01223	182.09	3,68
22	0.01279	178.70	3.55
23	0.01353	176.21	3,81
24	0.01411	171.31	3,25
25	0.01489	157.29	3,79
26	0.01550	162.95	3,54
27	0.01616	158.44	3,40
28	0.01764	147.64	3,34
29	0.01919	139.77	3,48
30	0.02061	128.64	2,60
31	0.02229	122.49	2,67
32	0.02323	120.29	2.45
33	0.02500	114.38	2.21
34	0.02684	101.86	2,29
35	0.02771	103.83	2,29
36	0.02964	95.22	2,21
37	0.03164	85.14	2,20
38	0.03346	78.83	1,65
39	0.03559	77.30	1.73
40	0.03751	73.24	1,66
41	0.03778	67.34	1.70
42	0.03976	67.63	1,66
43	0.04207	62.35	1,66
44	0.04315	60.03	1,66
45	0.04556	55.20	1,66
46	0.04604	53.68	1,52

•• P=64.8GEV/C

α=-0.092+/-0.034

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00199	309.98	12.11
2	0.00250	298.79	13.81
3	0.00310	270.75	10.35
4	0.00315	273.41	15.36
5	0.00377	258.04	8.08
6	0.00382	254.88	5.97
7	0.00428	246.49	7.35
8	0.00456	241.66	5.21
9	0.00507	244.27	7.42
10	0.00531	231.49	4.81
11	0.00617	222.58	4.36
12	0.00697	220.05	5.16
13	0.00711	212.66	4.18
14	0.00781	210.96	3.84
15	0.00796	207.37	4.68
16	0.00885	199.36	3.79
17	0.00893	199.03	4.64
18	0.01004	184.13	4.26
19	0.01122	177.75	4.22
20	0.01210	168.88	3.66
21	0.01228	179.83	4.12
22	0.01339	168.41	3.87
23	0.01359	167.10	3.47
24	0.01496	152.74	3.40
25	0.01628	142.62	3.30
26	0.01777	137.14	3.14
27	0.01934	127.83	3.03
28	0.02048	119.69	2.61
29	0.02215	109.99	2.56
30	0.02259	121.23	2.82
31	0.02435	107.63	2.29
32	0.02617	101.32	2.31
33	0.02792	91.89	2.20
34	0.02987	83.45	1.99
35	0.03188	79.87	1.93
36	0.03334	74.72	1.64
37	0.03547	68.66	1.69
38	0.03676	70.01	1.71
39	0.03900	64.66	1.44
40	0.04130	59.01	1.43
41	0.04348	55.21	1.35

*** P=20.5GEV/C
α=-0.283+/-0.044
B=38.0+/-0.5(C/GEV)**2
C=54.3+/-3.7(C/GEV)**4

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00174	440.47	25.00
2	0.00250	358.39	10.96
3	0.00276	356.50	13.56
4	0.00307	351.39	13.89
5	0.00335	356.18	10.09
6	0.00370	317.49	9.15
7	0.00401	334.52	7.67
8	0.00439	309.74	9.32
9	0.00513	290.72	6.25
10	0.00531	306.61	8.31
11	0.00593	279.94	5.33
12	0.00613	290.52	6.40
13	0.00679	264.22	4.70
14	0.00771	254.83	4.87
15	0.00846	243.98	5.23
16	0.00860	239.14	6.54
17	0.00869	237.17	6.68
18	0.00948	241.76	4.64
19	0.00972	221.03	5.41
20	0.01056	218.24	4.55
21	0.01083	229.16	4.89
22	0.01171	215.03	4.91
23	0.01198	218.86	4.51
24	0.01290	212.47	5.04
25	0.01319	209.37	4.16
26	0.01517	181.15	3.81
27	0.01653	174.31	3.32
28	0.01794	158.77	3.29
29	0.01942	156.10	3.56
30	0.01994	155.86	3.38
31	0.02096	143.34	3.40
32	0.02150	149.26	3.12
33	0.02299	139.39	1.50
34	0.02311	140.19	2.85
35	0.02558	130.62	1.92
36	0.02571	124.39	2.68
37	0.02747	116.77	2.28
38	0.02929	108.59	2.30
39	0.03117	104.88	1.05
40	0.03240	98.96	2.21
41	0.03311	91.59	2.26
42	0.03417	97.59	1.05
43	0.03446	92.32	1.96
44	0.03511	88.33	1.94
45	0.03649	85.99	1.81
46	0.03975	76.84	1.73
47	0.04193	71.30	1.44
48	0.04331	68.06	0.73
49	0.04418	66.06	1.46
50	0.04649	61.10	1.49
51	0.04683	61.00	0.91
52	0.04885	59.46	1.41
53	0.05049	53.68	0.58
54	0.05428	48.36	0.56
55	0.05821	43.05	0.53
56	0.06228	37.18	0.38
57	0.06993	29.86	0.40
58	0.07437	25.92	0.54
59	0.07895	22.87	0.33
60	0.08366	19.79	0.33
61	0.08851	16.62	0.31
62	0.09349	15.09	0.22
63	0.10279	11.75	0.37
64	0.10814	10.29	0.46
65	0.11363	9.12	0.30
66	0.11925	6.92	0.35
67	0.12500	6.82	0.30
68	0.13088	5.64	0.22
69	0.14180	4.39	0.20
70	0.14805	3.56	0.31
71	0.15443	3.15	0.21

***

P=60.8GEV/C
α=-0.129+/-0.041
B=41.6+/-0.8(C/GEV)**2
C=70.9+/-5.5(C/GEV)**4

N	-t	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$	N	-t	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00281	268.61	12.40	31	0.02415	104.86	2.41
2	0.00310	273.87	10.86	32	0.02434	112.11	3.42
3	0.00345	248.10	8.49	33	0.02574	97.80	1.25
4	0.00376	267.25	9.42	34	0.02596	94.38	2.12
5	0.00416	231.92	7.54	35	0.02864	84.34	1.62
6	0.00450	25[illegible].79	5.29	36	0.02888	89.34	2.13
7	0.00530	210.62	7.47	37	0.03086	82.84	1.81
8	0.00576	225.55	5.80	38	0.03170	80.28	0.90
9	0.00597	228.92	5.79	39	0.03290	75.90	1.90
10	0.00666	214.61	3.87	40	0.03386	75.28	2.27
11	0.00763	202.94	4.08	41	0.03600	63.95	1.93
12	0.00786	203.24	4.47	42	0.03649	67.97	1.69
13	0.00809	206.48	4.54	43	0.03871	62.80	1.52
14	0.00915	184.33	4.10	44	0.04099	57.93	1.35
15	0.00950	186.30	4.34	45	0.04465	50.95	1.28
16	0.01028	188.74	6.30	46	0.04711	46.78	1.06
17	0.01065	175.62	3.74	47	0.04849	41.52	0.57
18	0.01186	171.75	4.14	48	0.04963	42.89	1.11
19	0.01216	171.05	3.98	49	0.05243	37.45	0.77
20	0.01244	174.66	4.71	50	0.05652	32.53	0.41
21	0.01345	167.55	3.76	51	0.08325	13.31	0.49
22	0.01375	16[illegible].58	4.39	52	0.08837	12.11	0.32
23	0.01481	149.27	3.24	53	0.09364	10.97	0.49
24	0.01512	137.86	4.15	54	0.09906	9.08	0.39
25	0.01704	135.48	3.14	55	0.10463	7.76	0.30
26	0.01856	131.10	2.75	56	0.11503	5.51	0.24
27	0.02015	118.66	2.87	57	0.12101	5.09	0.33
28	0.02090	12[illegible].46	3.27	58	0.13343	3.52	0.23
29	0.02140	117.32	2.77	59	0.13986	3.24	0.18
30	0.02259	106.20	2.95	60	0.14643	2.70	0.13

*** P=70.2GEV/C
... α=-0.136+/-0.047
B=39.5+/-0.7(C/GEV)**2
C=60.0+/-4.8(C/GEV)**4

N	$-t$	$\frac{d\sigma}{dt}$	$\Delta\left(\frac{d\sigma}{dt}\right)$
1	0.00204	349.36	20.02
2	0.00254	297.92	18.30
3	0.00314	278.66	12.31
4	0.00324	320.40	16.66
5	0.00394	240.55	8.60
6	0.00404	269.59	11.76
7	0.00454	270.00	8.40
8	0.00464	246.02	10.10
9	0.00474	248.89	10.17
10	0.00534	251.41	9.82
11	0.00564	227.23	9.24
12	0.00614	259.71	8.43
13	0.00624	237.29	6.39
14	0.00704	207.02	6.24
15	0.00744	222.35	6.21
16	0.00794	229.13	7.38
17	0.00804	224.79	7.33
18	0.00844	202.90	5.36
19	0.00904	205.95	6.44
20	0.00954	190.61	5.03
21	0.01014	193.87	6.58
22	0.01164	181.46	6.55
23	0.01244	189.74	5.21
24	0.01294	164.70	5.50
25	0.01374	163.89	4.74
26	0.01424	177.65	6.03
27	0.01494	159.03	5.12
28	0.01514	157.93	5.12
29	0.01644	151.93	4.69
30	0.01794	144.76	4.87
31	0.01894	131.18	4.69
32	0.02154	120.63	4.03
33	0.02274	119.39	3.38
34	0.02324	116.74	3.91
35	0.02454	109.22	3.23
36	0.02594	104.62	1.66
37	0.02624	103.59	3.43
38	0.02634	106.49	3.53
39	0.02814	97.71	3.11
40	0.02887	94.69	1.09
41	0.03004	87.22	3.06
42	0.03194	85.45	1.05
43	0.03264	82.76	3.26
44	0.03474	73.66	2.57
45	0.03518	75.81	1.38
46	0.03694	67.12	2.47
47	0.03704	69.35	2.07
48	0.03856	68.36	1.32
49	0.03924	66.00	1.99
50	0.04134	59.39	2.09
51	0.04154	58.97	2.09
52	0.04211	61.30	1.24
53	0.04374	54.63	1.86
54	0.04614	50.16	1.85
55	0.04886	45.77	0.91
56	0.04934	44.94	1.73
57	0.05284	40.32	0.59
58	0.05696	35.66	0.56
59	0.06124	31.33	0.70
60	0.06567	26.79	0.65
61	0.07026	23.04	0.61
62	0.07889	18.52	0.49
63	0.08389	15.97	0.33
64	0.08906	13.44	0.32
65	0.09437	11.39	0.42
66	0.10545	8.51	0.54
67	0.11592	7.11	0.44
68	0.12195	5.69	0.27
69	0.12813	4.64	0.24
70	0.13446	4.70	0.32
71	0.14094	3.30	0.33
72	0.14757	2.89	0.30
73	0.15986	1.59	0.31
74	0.16689	1.51	0.23
75	0.24352	1.45	0.28