Progress Report on the calculation of the Number & Type of neutrino int.

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Mistake on previous calculation

- The D^o production cross section used is : 16.9 ± 3.5 μ b
- The ratio R, of charged to neutral charm : 0.41 ± 0.03
- Therefore, the value of the $D^{\pm}$ production cross is :

$$\sigma(D^{\pm}) = R \times \sigma(D^o) = 0.41 \times 16.9 = 6.9 \pm 1.5\ \mu b$$

- However, in the previous calculation we did :

$$\sigma(D^{\pm}) = R \times \sigma(D^o) = 0.41 \times 19.6 = 8.04 \pm 1.40\ \mu b$$

- So we updated the results . . .

Number of neutrino int.

PERIOD 1	ST1	ST2	ST3	ST4	ALL
NUMU CC p	14±2		14±2		28±3
NUMU CC np	6±3		6±3		12±4
NUMU CC all	20±4		20±4		40±6
NUE CC	17±2		17±2		34±3
NUTAU CC	2±1		2±1		4±1
NC	11±2		11±2		22±3
ALL	50±5		50±5		100±7

PERIOD 2	ST1	ST2	ST3	ST4	ALL
NUMU CC p	12±2		12±2	9±1	33±3
NUMU CC np	5±2		5±2	4±2	14±2
NUMU CC all	17±3		17±3	13±2	47±5
NUE CC	14±2		14±2	11±1	39±3
NUTAU CC	1±1		1±1	1±1	3±2
NC	9±1		9±1	7±1	25±2
ALL	41±4		41±4	32±3	114±6

Number of neutrino int.

PERIOD 3	ST1	ST2	ST3	ST4	ALL
NUMU CC p	28±4	22±3	24±3	22±3	96±7
NUMU CC np	11±6	9±5	9±5	8±5	37±11
NUMU CC all	39±7	31±6	33±6	30±6	133±13
NUE CC	32±4	26±3	27±4	25±3	110±7
NUTAU CC	3±2	3±1	3±1	3±1	12±3
NC	22±3	18±2	19±3	17±2	76±5
ALL	96±9	78±7	82±8	75±7	331±16

PERIOD 4	ST1	ST2	ST3	ST4	ALL
NUMU CC p	36±5	34±5	35±5	21±3	126±9
NUMU CC np	14±8	13±7	14±7	8±4	49±13
NUMU CC all	50±9	47±9	49±9	29±5	175±16
NUE CC	41±5	39±5	41±5	24±5	145±10
NUTAU CC	4±2	4±2	4±2	2±1	14±4
NC	28±4	27±4	28±4	16±2	99±7
ALL	123±11	117±11	122±11	71±7	433±21

Total number & ANN comparison

Expected	978 ± 28
Observed	1008 ± 32
Difference	30 ± 42

Good agreement (within ~ 1 σ)

	numu CC	nue CC	NC
Expected (Ratio%)	40.4 ±1.5	33.5 ±1.2	22.7 ±0.9
ANN "Expected"	31.9 ±1.4	36.8 ±1.2	31.3 ±1.0
ANN "Observed"	34.1 ±1.5	35.9 ±1.5	30.0 ±1.4
Difference	2.2 ±2.1	0.9 ±1.9	1.3 ± 1.7
Expected (Number)	407 ±15	338 ±12	229 ± 9
ANN "Expected"	312 ±17	360 ±11	306 ± 8
ANN "Observed"	344 ±19	362 ±19	302 ±17
Difference	32 ±25	2 ±22	4 ± 19

On Going Work

- We are running MC to determine the trigger efficiencies for all types of neutrino interactions & for both types of Triggers (A & B)

- We are re-doing checks in order to make sure that all parts of the calculation are correct…