

# *MIPP Experiment Status*

Holger Meyer  
Fermilab All Experimenters' Meeting  
7/22/05

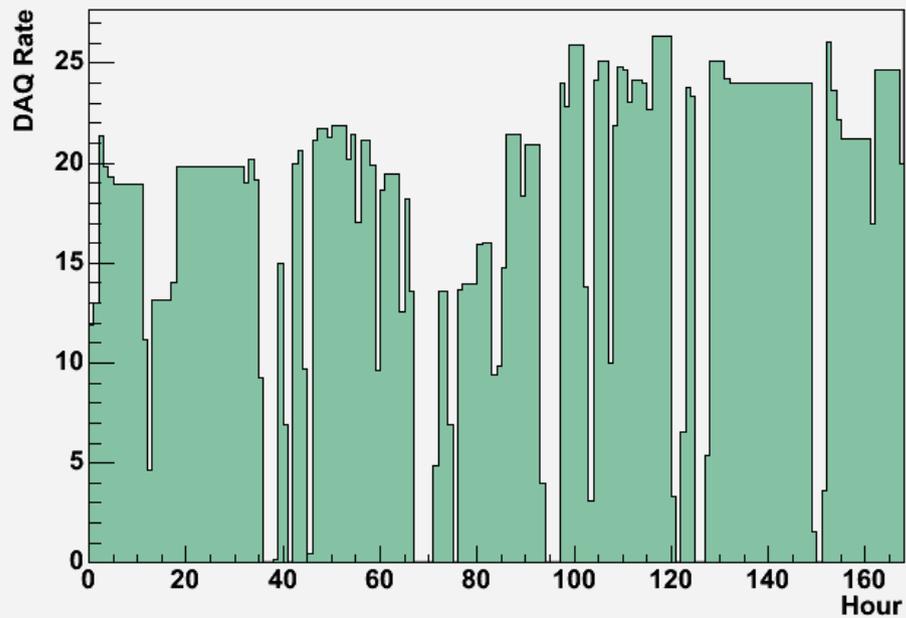
- Detector Status
- Data Set
- Summary

# *MIPP Detector Status*

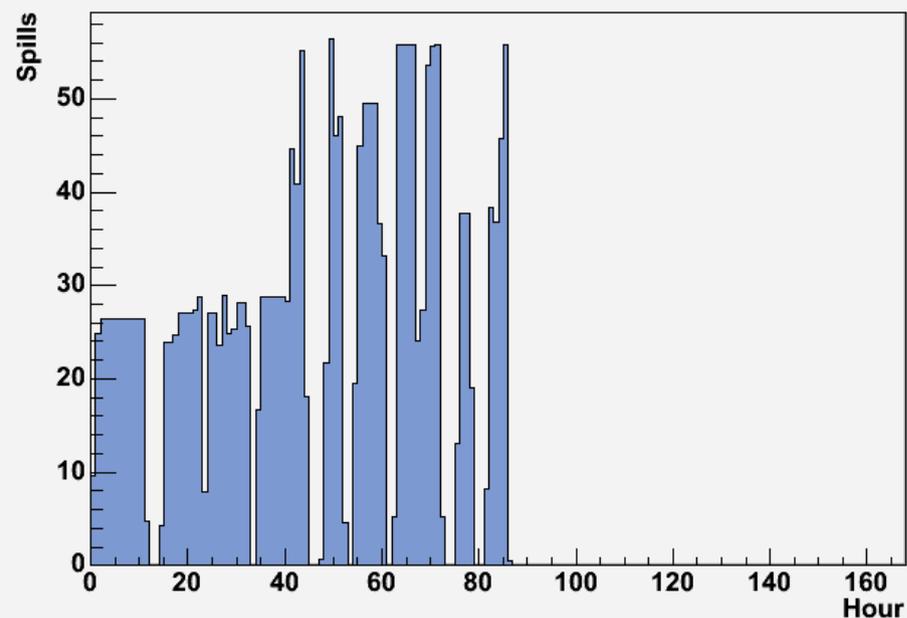
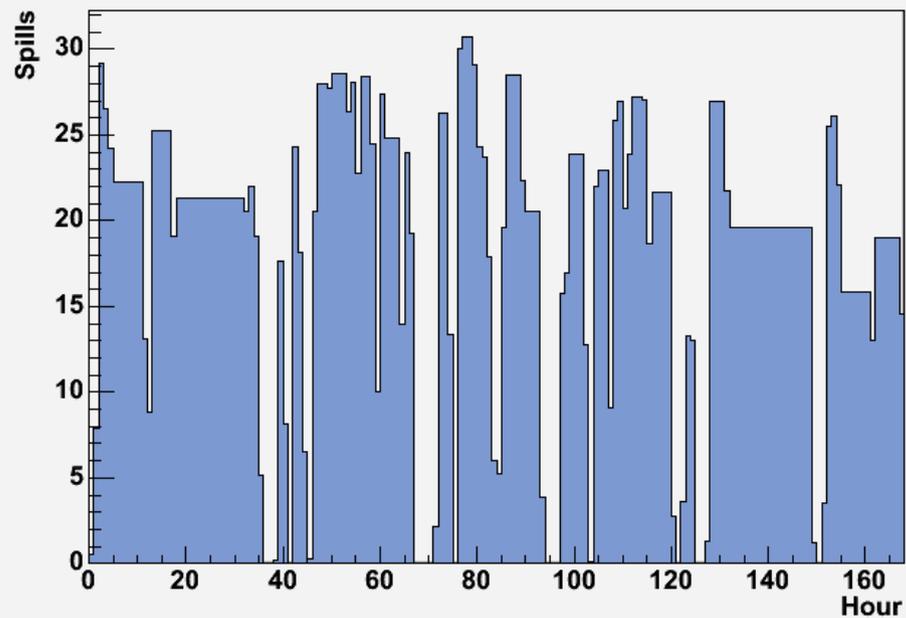
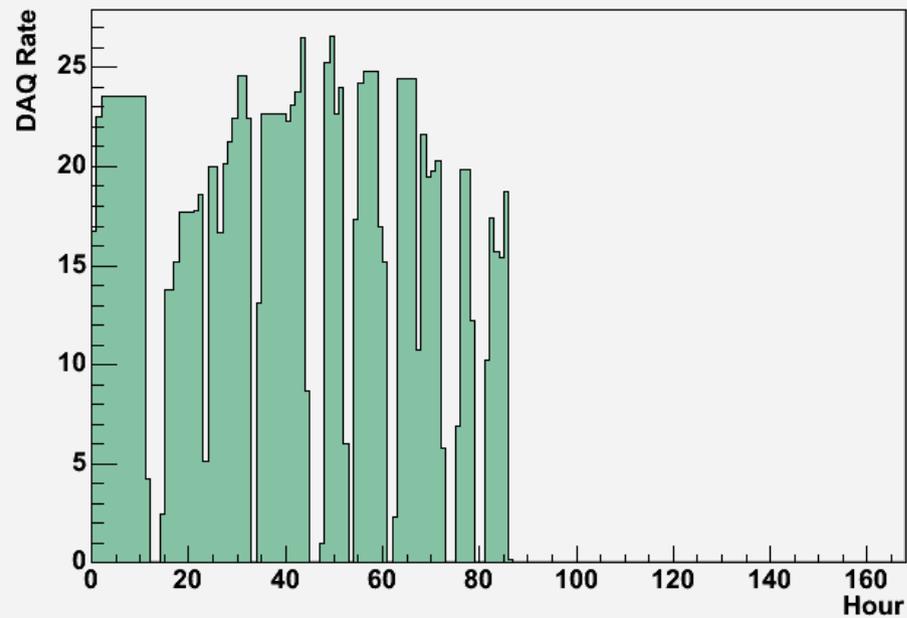
- The MIPP detector is working well
- All MIPP detector systems have been up and running since mid-January with few interruptions
  - TPC electronics · gives problems now and then
    - Sometimes it is the symptom of another problem (TPC chiller, ...)
  - RICH electronics · used to give init errors
    - Runs well after many 'phone-cables' have been replaced
  - DC-TDCs, TOF · sometimes no LAM
    - DAQ catches this, all ok when new run is started
  - JGG · coil short
  - Gas systems · methylal refrigerator, ...
- Shifters need to monitor data quality (onmon, evd). Problems are usually minor and can be fixed with little/no downtime.
- This is a success

# MIPP Detector Status

2005-07-11

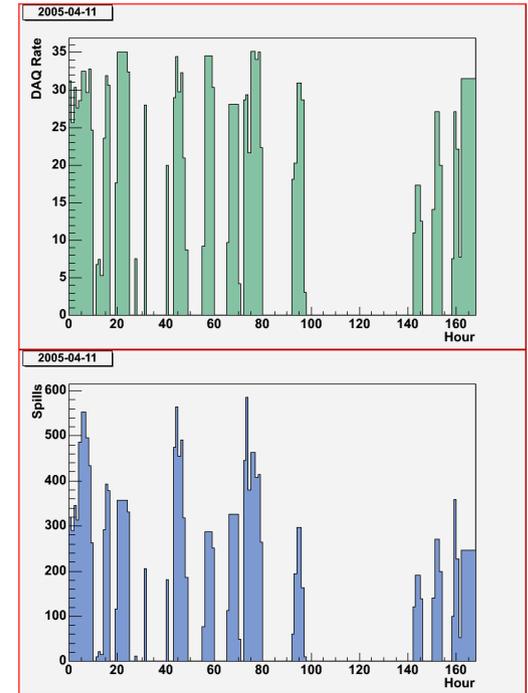


2005-07-18



# MIPP Detector and Beam Status

- We take data at DAQ rates limited by the TPC readout
  - 20 to 25 Hz on the NuMI target
  - 30 to 35 Hz on thin and cryo targets
- Some (few) runs have lower rates due to beam problems
  - Intensity, size, and/or position
  - Shifters have to interact with the MCR when this happens
    - Overall good communication with MCR crews
    - Switchyard group (Carol et. al.) are always there when we need them
- MIPP needs beam spill seconds to collect data, not proton intensity.
  - We were running with 0.6 second slow spills and (up to) 10 spills per minute until May10
  - We were running (initially bad) 4 second slow spills at 0.5 spills per minute from May10<sup>th</sup> to July 19<sup>th</sup> and are now running at 1 spill per minute.
  - This did not give us as much integrated beam-time/data as we expected



# MIPP Data Summary

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Terminal
File Edit View Terminal Go Help
runs=> select * from stats_summary;

```

momentum	target	spill	emptyspill	kint	piint	pint	int_total	spillevt_total	evt_total	run_time	start_date	end_date
-101	NuMI	252	21	0	0	0	0	35564	37807	07:31:33	2005-06-17	2005-06-17
-72	empty Cryo-target	6532	190	38767	43542	970	83279	113829	134446	17:01:52	2005-04-03	2005-04-04
-72	LH2	28714	1410	174901	211260	4679	390840	491191	582194	3 days 10:47:53	2005-03-31	2005-04-07
-50	Aluminum	1822	135	5503	6845	927	13275	19104	24677	02:51:13	2005-02-26	2005-02-26
-50	Beryllium	24890	2010	98185	126598	15687	240470	303501	372573	4 days 02:45:42.908867	2005-01-23	2005-05-27
-50	Bismuth	45026	3873	178480	229648	26870	434998	547431	693591	6 days 17:04:00.447498	2005-01-26	2005-05-27
-50	Carbon	1493	29	5539	6764	902	13205	18730	23149	02:53:04	2005-02-26	2005-02-26
-50	Empty	9751	803	32196	41727	4771	78694	124863	151372	1 day 06:38:14.822811	2005-01-26	2005-05-26
-50	empty Cryo-target	14379	797	56259	74669	8300	139228	175583	223061	1 day 13:32:14	2005-03-14	2005-03-21
-50	LH2	28458	1575	135308	185296	20661	341265	412306	508014	3 days 11:41:12	2005-03-15	2005-03-25
-30	Aluminum	2345	163	20597	23488	4665	48750	52353	61564	1 day 09:19:05	2005-02-06	2005-06-03
-30	Beryllium	2251	115	32737	36517	7836	77090	84825	97867	2 days 17:05:10	2005-05-28	2005-06-04
-30	Bismuth	20893	2275	94340	111047	21437	226824	259239	329188	3 days 12:20:30	2005-02-05	2005-06-05
-30	Empty	3512	360	17611	18985	4091	40687	47789	60584	1 day 04:51:33	2005-02-05	2005-06-05
-30	none	684	252	0	6950	89	7039	7130	9305	01:24:40	2005-03-01	2005-03-01
-17	empty Cryo-target	5514	471	24227	23708	30422	78357	88904	105608	18:11:56	2005-04-16	2005-04-20
-17	LH2	24587	1300	86957	126793	149471	363221	405671	478874	2 days 22:43:21	2005-04-14	2005-04-22
-4	LH2	19516	762	101347	0	0	101347	156554	302491	2 days 03:30:17	2005-04-23	2005-04-29
0	NuMI	267	51	0	0	0	0	0	16344	10:05:06	2005-06-30	2005-07-20
4	LH2	14511	1480	30634	0	0	30634	57208	242652	1 day 13:56:07	2005-04-26	2005-04-28
17	Carbon	75	0	0	0	0	0	2714	2789	00:15:37	2005-04-29	2005-04-29
17	Carbon - 2%	16089	1874	34396	186470	116861	337727	386974	429911	1 day 21:14:40	2005-04-30	2005-05-03
17	Empty	4022	76	9221	47594	25621	82436	100101	111561	11:18:51	2005-04-30	2005-05-03
17	empty Cryo-target	5310	39	22010	25463	24208	71681	96700	113477	12:28:01	2005-04-09	2005-04-10
17	LH2	28205	871	145953	130664	131049	407666	520375	606966	2 days 17:56:34	2005-04-08	2005-04-14
30	Aluminum	3383	118	54	17556	26533	44143	50526	61371	09:11:53	2005-02-26	2005-02-28
30	Beryllium	768	20	501	2892	7762	11155	12539	14972	02:38:37.388721	2005-02-02	2005-02-28
30	Bismuth	19416	1095	74451	79767	70575	224793	265633	331528	2 days 00:18:10.876861	2005-02-02	2005-05-06
30	Carbon	5502	509	64	26897	39881	66842	77091	94795	13:21:46	2005-02-26	2005-02-28
30	Empty	6757	490	17984	28912	27037	73933	91140	112415	16:43:22	2005-02-02	2005-05-06
30	none	1998	24	0	22075	9888	31963	32725	38899	03:46:07	2005-02-28	2005-03-01
40	Aluminum	0	0	855	1739	1673	4267	5138	8093	01:03:59.287181	2005-01-17	2005-01-17
40	Beryllium	0	0	791	1569	1581	3941	4831	7515	01:04:47.866046	2005-01-17	2005-01-17
40	Bismuth	0	0	1634	8092	7903	17629	18862	22804	04:01:46.933308	2005-01-16	2005-01-17
40	Carbon	6	3	4531	34243	33643	72417	75076	80321	09:32:46.522162	2005-01-15	2005-01-17
40	Copper	0	0	587	2501	2481	5569	6112	7687	01:42:05.246494	2005-01-16	2005-01-17
40	Empty	6	5	1322	8190	6832	16344	25396	33207	05:06:32.600549	2005-01-13	2005-01-15
40	Silver	0	0	1348	6056	6763	14167	66453	56617	03:12:11.726149	2005-01-17	2005-01-17
50	Beryllium	19633	2261	61612	77754	75188	214554	259511	382966	2 days 09:47:01.917513	2005-01-18	2005-05-20
50	Bismuth	35083	4882	142280	164158	140990	447428	512948	643003	5 days 23:49:57.568188	2005-01-18	2005-05-18
50	Carbon	10383	550	10557	27382	80956	118895	157117	187918	23:11:24	2005-02-14	2005-02-18
50	Carbon - 2%	8401	574	66326	82130	72524	220980	233311	264152	3 days 04:14:19	2005-05-07	2005-05-20
50	Empty	14272	1842	49948	59282	66916	176146	211752	294149	2 days 07:52:52.737011	2005-01-18	2005-05-20
50	empty Cryo-target	17880	1242	65337	93541	77290	236168	263625	318759	1 day 22:38:32	2005-03-02	2005-03-14
50	LH2	42155	2746	131502	203966	184321	519789	602726	705101	4 days 16:50:07	2005-03-04	2005-03-14
72	empty Cryo-target	4809	120	5357	18296	43796	67449	91957	107632	11:39:45	2005-03-27	2005-03-27
72	LH2	25042	1512	27758	104457	280637	412852	514915	596343	2 days 13:59:13	2005-03-25	2005-03-30
101	NuMI	15584	1857	0	0	0	0	27907	1150809	22 days 04:00:42	2005-06-16	2005-07-22

(48 rows)

runs=> 7/22/05

# MIPP Data Summary

MIPP Run Plan: Operations

Sum of Mevents				E										Grand Total	
Priority	Z	Target	Note	5	13.3	15	20	30	40	50	60	75	120	Grand Total	
1	1	H				0.80				0.80		0.80		2.40	
	4	Be	p only										1.00	1.00	
	6	C	p only		0.38				0.38					0.38	
		NuMI	p only											0.38	
	83	Bi	p only											1.00	
	92	U					0.50			1.00				1.50	
<b>1 Total</b>					0.38	0.80	0.50	0.38	3.30		0.80		2.76	8.92	
2	1	H		1.40	0.40	1.40		0.40		0.40				4.00	
	12	C		0.30	0.30	0.30		0.30		0.30				1.50	
	4	Be	p only				1.00		0.50					2.00	
	6	C	p only			0.29				0.29				0.58	
		NuMI	p only											1.15	
	7	H		0.50	0.50		0.50							1.50	
2 Total	83	Bi	p only				0.50							2.00	
	92	U					0.50		1.00		1.00			2.50	
	<b>2 Total</b>				2.20	0.50	0.70	0.29	3.70	3.20	0.29	1.70		5.73	18.31
	3	1	H		3.00	3.00	3.00		3.00		3.00				15.00
		12	C		0.30	0.30	0.30		0.30		0.30				1.50
		4	Be	p only											3.00
			p only, 2x target	1.00	1.00				0.81		1.00			0.60	
6		C	p only	1.00	0.62	0.62		0.62		0.62				0.62	
			pl, K only	1.00		0.66		0.66		0.66					1.00
3 Total		NuMI	p only											3.08	
	7	H		0.50	0.50		0.50							1.50	
	29	Cu	p only				1.00		2.00		1.00			4.00	
	83	Bi	p only											3.00	
			p only, 2x target	1.00	1.00									0.60	
	<b>3 Total</b>				6.80	3.12	3.30	1.28	4.80	1.28	6.11	1.28	5.30		14.90
<b>Grand Total</b>				9.00	4.00	4.80	1.57	9.00	1.66	12.61	1.57	7.80		23.39	75.40

- Physics run started mid-January
- We have taken
  - Priority 1 data below 120 GeV/c on thin targets (except U) and LH2
  - NuMI target data (Priority 1 and 2)
- Good runs integrate to almost 100 days of DAQ uptime and 6.6 million events
- We will take all the remaining 120 GeV thin target data starting Aug. 1<sup>st</sup>
- Plan in detail: later today

# *MIPP Experiment Status Summary*

- MIPP detector is working well (data quality and uptime)
- MIPP beam is of good quality overall
  - Rate of spill seconds is less than desired
- We need to analyse this data and get results out
  - We just had a productive software workshop
  - See Mark's talk on Offline Analysis and other talks today
  
- Thanks to everyone who helped us get this far!!!