Fermilab

PBAR NOTE #459

# Index to Log Books No. 1-6, 1985

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## Accumulator

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### LOG BOOK #3

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| Initial Acc. RF & tune investigations | 30 - 39 | 6/22 | P |

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| Turn on and first Schottky scans | 101 - 103 | 6/27-28 | P |
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| Dispersion measured | 197 | 7/14 | P |
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| Obstacle studies, bumps | 200 - 203 | 7/14 | P |
| Momentum aperture measured | 204 | 7/14 | P |
| $\Delta\nu$ vs. $\Delta f_o$ & quadratic fits | 205 - 207 | 7/14 | P |
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|---|---|---|---|
| Injection studies | 297 - 302 | 7/27 | P |
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LOG BOOK #4

| | | | |
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| Coupling studies | 45 - 52 | 8/3 | P |
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| Note: "Coasting Beam Safety system" R. R. Parry | 200 | 8/23 | |
| Note: "Loss Monitors in the Acc. | 216 | 8/26 | |
| Note: "SEM 29 Located between A104 & A105 | 220 | 8/22 | |
| Note: "Nominal Injection Orbit" G. Dugan | 222 | 8/25 | |
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| Coupling vs. radial position | 235 - 237 | 8/27 | P |
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| Coupling vs. momentum | 248 | 8/27 | P |
| Chromaticity measured & Poly. fit | 254 | 8/29 | P |
| Tune changed to better working point | 256 | 8/29 | P |
| Lifetime measured | 263 - 264 | 8/30 | P |
| Lifetime measured | 278 | 8/31 | P |
| Tune meas., tune space | 279 | 8/31 | P |
| Lifetimes for various tunes | 279 - 280 | 8/31 | P |
| Mom. spread at injection | 283 | 8/31 | P |

LOG BOOK #5

| | | | |
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| Tune at extraction orbit | 100 | 9/7 | P |
| Tune vs. freq. and polynomial fits | 104 - 105 | 9/7 | P |
| Beam spreading vs. current | 106 | 9/7 | P |
| Emittance, lifetime | 107 | 9/7 | P |
| Bus settings | 117 | 9/17 | S |
| Injection Tuning | 156 | 9/14 | P |
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| Calibration of long. Schottky | 200 - 201 | 9/17 | S |
| Schottky response | 233 | 9/19 | S |
| Effect of Debuncher cooling on current on Accumulator injection orbit | 239 | 9/21 | S |
| New Schottky calib | 253 | 9/21 | S |
| Tune space | 259 | 9/22 | S |
| Tune space | 262 | 9/22 | S |
| Lifetime | 274 | 9/22 | S |
| Tune space | 301 | 9/24 | S |

LOG BOOK #6

| | | | |
|---|---|---|---|
| Lifetime | 17 | 9/26 | P |
| Note: "Using the Long. Schottky PU as intensity monitor" | 45 | 9/28 | P |
| Response of h=38 and h=127 Schottky PU's | 72 | 9/29 | P |
| Various transfer efficiencies documented | 82 | 10/1 | S |
| Lifetime plot | 105 | 10/5 | S |
| Measured various freq. | 144 | 10/7 | S |
| Tune space | 152 | 10/8 | S |
| Note: "Antiproton Beam Injection Checklist" | 155 | 10/7 | S |
| Tunes | 161 | 10/9 | S |
| Tune space | 162 | 10/9 | S |
| Effect of Debuncher bus on Accumulator Tune | 197 | 10/12 | S |

## Accumulator Stochastic Cooling

LOG BOOK #4

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Core mom. cooling pic's | 265 | 8/30 | P |
| Core H & V cooling | 276 | 8/31 | P |
| Core mom. cooling | 285 | 8/31 | P |
| RF stacking, cooling | 287 - 289 | 8/31-9/1 | P |
| Stack-tail trombone settings | 288 | 9/1 | P |

LOG BOOK #5

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| First stochastic stacking in accumulator | 12 - 26 | 9/3 | P |
| Stack tail measurements | 27 - 29 | 9/3 | P |
| Stack tail measurements | 41 - 51 | 9/4 | P |
| Stochastic stacking | 55 - 61 | 9/5 | P |
| A-10 scans for centering beam | 66 - 67 | 9/5 | P |
| Settings for stacking studies | 68 - 70 | 9/5 | P |
| Stacking studies | 72 - 94 | 9/5-6 | P |
| Pbars in core | 126 | 9/8 | S |
| Cooling studies | 243 - 245 | 9/21 | S |
| Stacking rate | 254 - 258 | 9/21-22 | S |
| Stacking rate | 264 | 9/22 | S |
| Stacking rate | 276 | 9/22 | S |

| | | | |
|---|---|---|---|
| Stacking rate | 280 | 9/23 | S |
| Core heating by stack tail system | 285 - 287 | 9/23 | S |
| Filter studies | 295 | 9/24 | S |
| Stacking rate | 297 - 298 | 9/24 | S |

LOG BOOK #6

| | | | |
|---|---|---|---|
| Stack tail vs lifetime | 38 | 9/28 | P |
| Cooling studies | 64 - 70 | 9/28-29 | P |
| Heating of stack tail by core betatron | 71 | 9/29 | P |
| Cooling studies | 83 - 88 | 10/1 | S |
| Accumulation rate | 90 | 10/1 | S |
| Accumulation rate | 105 | 10/3 | S |
| Particle density at core | 108 | 10/3 | S |
| Core distribution vs. stack tail on/off | 130 - 131 | 10/6 | S |
| Core cooling studies | 137 - 143 | 10/7 | S |
| Stacking rate ~ 50-70$^{\mu A}$/hr | 151 | 10/8 | S |
| Horizontal tune at core | 152 | 10/8 | S |
| Note: "Core cooling in Preparation for Extraction" | 167 | 10/10 | S |
| Core revolution freq. vs. tune | 169 | 10/10 | S |
| Stacking at 70$^{\mu A}$/hr. | 182 | 10/11 | S |
| Core density $4.31 \times 10^3$/eV | 185 | 10/11 | S |

## Accumulator R.F. Cavities

### LOG BOOK #3

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| RF capture | 19 - 20 | 6/21 | P |
| Adjusting 84th harm. & bends to MR RF (ARF-1) | 37 - 40 | 6/22 | P |
| Gannon's note on LLRF | 96 | 6/26 | |
| ARF-1/MRRF phase jitter problem | 130 | 6/30 | P |

### LOG BOOK #4

| | | | |
|---|---|---|---|
| Mountain range pic. of stacking buckets | 77 | 8/6 | P |
| ARF-1 phase lock to MR | 127 - 129 | 8/14 | S |
| ARF-1 studies | 147 - 151 | 8/17 | P |
| Mountain range pic's, quadrupole oscillation | 225 - 226 | 8/26 | P |
| Capture, bunch rotate | 227 - 228 | 8/27 | P |
| Full apertures of ARF-1, ARF-2, ARF-3 | 241 | 8/27 | P |
| Mountain range pic's | 283 | 8/31 | P |
| Gap monitor, mountain range pic's | 294 - 295 | 9/1 | P |

### LOG BOOK #5

| | | | |
|---|---|---|---|
| Pictures of ARF-2 and ARF-3 and beam after unstacking to extrac. orbit | 30 - 31 | 9/3 | P |

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|---|---|---|---|
| Mountain range pictures vs bend bus | 102 | 9/6 | P |

LOG BOOK #5

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|---|---|---|---|
| Phase adjustment of ARF-1 to minimize coherent synch. oscill | 112 | 9/7 | P |
| Comments regarding Accumulator Effects of 9/7/85 | 115 | 9/7 | S |
| Coherent dipole oscill. of bunches in MR | 155 | 9/14 | P |
| Turned ARF-1 off and looked at debunching | 171 - 172 | 9/15 | P |
| Injection orbit vs ARF-1 | 246 - 247 | 9/21 | S |
| Beam capture | 249 - 250 | 9/21 | S |

LOG BOOK #6

| | | | |
|---|---|---|---|
| New settings for ARF-1 | 18 | 9/25 | S |
| RF unstacked beam at extract. orbit | 74 | 9/29 | P |
| ARF-1 efficiency | 101 | 10/1 | S |

## Accumulator Injection & Extraction Kickers

LOG BOOK #3

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| EKIK timing and pic. | 128 | 6/30 | P |

# Accumulator Septa

## LOG BOOK #4

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Radiation survey | 69 | 8/4 | P |
| Timing pic's | 139 - 140 | 8/16 | P |

## LOG BOOK #5

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|---|---|---|---|
| A:ISEP strength using SEM 806 | 187 | 9/16 | P |

## Accumulator BPM's

LOG BOOK #3

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Final polarity fix | 200 - 203 | 7/14 | P |

## Debuncher

LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Tuning | 64 - 66 | 4/13 | P |
| Tuning | 73 - 82 | 4/13-14 | P |
| Tuning vertical injection | 102 - 108 | 4/22 | P |
| Closed orbit study, beam capture | 119 - 121 | 4/23 | P |
| Tuning injection | 130 | 4/25 | P |
| Tuning | 198 | 5/3 | S(?) |
| Closed, 1st turn orbits | 203 - 207 | 5/3-4 | S(?) |
| Tunes measured | 207 | 5/4 | S(?) |
| Sextupoles turned on | 208 | 5/4 | S(?) |
| Ruggiero's note on sextupoles | 212 - 217 | 5/3 | S(?) |
| Tunes measured | 220 - 229 | 5/4-5 | S(?) |
| 3-bump scans | 250 - 251 | 5/11 | P |
| Tunes measured | 252 | 5/11 | P |
| Stored beam orbit studies | 261 - 263 | 5/12 | P |
| DCCT problems | 264 | 5/12 | P |
| Tuned injection orbit | 268 - 271 | 5/12 | P |
| Aperture studies | 268 | 5/12 | P |

LOG BOOK #2

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|---|---|---|---|
| Schottky PU tunes vs. turn by turn display tunes | 7 | 5/17 | P |
| H&V dispersions measured | 9 | 5/17 | P |
| Bump scans | 13 - 14 | 5/17 | P |
| Mom. aperture measured | 16 | 5/18 | P |
| Calibrated 53 MHZ oscillator vs. voltage | 21 | 5/18 | P |
| Tunes measured | 24 - 26 | 5/18 | P |
| Tunes measured by cusp method | 29 - 30 | 5/19 | P |
| Chromaticity, dispersion measured | 31 - 33 | 5/19 | P |
| Tunes measured | 40 | 5/19 | P |
| Bus supply settings | 64 | 5/22 | P |
| DCCT measurements | 87 - 88 | 5/24 | P |
| Tunes measured | 97 - 98 | 5/25 | P |
| Emittance measured with scrapers | 100 - 107 | 5/25 | P |
| $\Delta P/P$ measured | 111 | 5/25 | P |
| Long. Schottky vs. DCCT | 121 | 5/25 | P |
| Secondary protons with Deb. | 136 - 139 | 5/27 | S |
| Scraper/collimator update | 142 | 5/28 | S |
| Kell's note on emittance using Schottky PU's | 150 - 151 | 5/30 | |

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|---|---|---|---|
| Shafer's note on sensitivity of long. Schottky | 153 | 5/31 | |
| Gap monitor pictures | 167 - 172 | 6/1 | S |
| Bus settings | 237 | 6/9 | P |
| Tunes measured | 237 - 238 | 6/9 | P |
| Chart of quad vs. bus | 244 | 6/9 | P |
| Injection studied | 268 - 270 | 6/15 | P |
| Closed orbit | 293 | 6/17 | S |
| Acceptance measured | 295 - 296 | 6/18 | S |

LOG BOOK #3

| | | | |
|---|---|---|---|
| Initial (Carlos) Deb. bump centering-lifetimes | 53 - 55 | 6/23 | P |
| Schottky PU elect. centering pics. | 56 - 57 | 6/23 | P |
| Setting bus vs. Po a la F. Pederson | 58 - 59 | 6/23-24 | P |
| Definitive Sch. PU note | 60 | 6/23 | |
| $\Delta P/P$ vs. emittance meas. | 62 - 65 | 6/24 | P |
| Emittance meas. | 70 - 71 | 6/24 | S |
| Meas. of sec. $\Delta P/P$ & intensity | 72 - 74 | 6/24 | S |
| Stoch heating/scraping | 76 - 77 | 6/25 | S |
| Schottky PU calibrations | 83 - 85 | 6/25 | P |
| Tune space | 86 - 87 | 6/25-26 | P |
| Petros' DCCT - Torroid IC 728 studies/calib | 88 - 91 | 6/25-26 | P |
| Tune → Lifetime | 94 | 6/26 | P |

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|---|---|---|---|
| Description of post scraper loss monitors | 148 | 7/1 | P |
| Bump studies | 155 - 160 | 7/2 | P |
| Trim survey data | 160 | 7/2 | P |
| Initial bump survey & emittance (scraper) estimate | 161 - 165 | 7/2-3 | P |
| New loss monitor prescription | 167 | 7/3 | P |
| Radiation survey | 172 | 7/5 | P |
| Injection and bump study | 173 - 175 | 7/5 | P |
| Lifetime study | 176 | 7/5 | P |
| Bump scans | 177 - 178 | 7/5 | P |
| Injection studies | 179 | 7/5 | P |
| Bump, scraper studies | 230 | 7/16 | P |
| Calib. of tune mults | 232 | 7/17 | P |
| Bump, scraper, stochastic studies | 232 - 234 | 7/17 | P |
| Energy measured with Li lens in vs. out | 231; 235 | 7/17 | P |
| Lens steering study | 236 | 7/18 | P |
| Bump, scraper, stoch. studies | 237 - 238 | 7/18 | P |
| Tuning on secondaries | 239 - 242 | 7/18 | S |
| Circulating beam intensity using Schottky PU | 248 - 249 | 7/19 | S |
| Bump studies | 251 | 7/19 | S |
| Ideal revolution freq. | 283 | 7/24 | P |
| Moving beam to different radii | 286 - 290 | 7/24 | P |
| Momentum smearing | 292 | 7/25 | P |

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|---|---|---|---|
| Momentum smearing | 292 | 7/25 | P |

LOG BOOK #4

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|---|---|---|---|
| Fields around beampipes | 28 - 31 | 7/31 | P |
| Setup for delayed extraction from Deb. | 63 | 8/4 | P |
| Profile Monitor studies | 70 - 72 | 8/4 | P |
| Beta function meas. | 83 - 85 | 8/8 | P |
| Coupling measured | 93 - 96 | 8/10 | P |
| Beam instability at 127th harmonic | 99 - 100 | 8/10 | P |
| Vacuum | 108 - 110 | 8/11 | P |
| Calibration of Schottky Long. PU | 267 - 269 | 8/30 | P |
| Lifetime measured | 270 | 8/31 | P |
| Emittance measured with scrapers | 274 | 8/31 | P |
| Timing chart | 293 | 9/1 | |

LOG BOOK #5

| | | | |
|---|---|---|---|
| Corrected closed orbit | 32 - 33 | 9/3-4 | P |
| Dugan's prescription for scraper emittance measurements | 52 - 53 | 9/5 | P |
| Long. Schottky Calib | 116 | 9/7 | S |
| Measurement of revolution frequencies | 125 | 9/8 | S |
| Revolution freq., tunes | 128 | 9/8 | P |

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|---|---|---|---|
| Loss monitors | 131 | 9/8 | P |
| Radiation survey | 144 | 9/11 | P |
| Table of emittance measurements | 146 | 9/11 | P |
| Loss monitor info | 163 | 9/14 | P |
| Bus settings, central orbit | 168 | 9/15 | P |
| Bus settings | 175 | 9/15 | P |
| Tunes measured | 176 - 177 | 9/15 | P |
| Emittance measured | 183 - 184 | 9/16 | P |
| Bus settings vs. revolution freq. | 196 - 197 | 9/17 | P |
| Bumps at scrapers | 204 | 9/16 | S |
| Measurement of $\Delta P/P$ | 205 | 9/17 | S |
| Multiple turn display | 218 | 9/19 | S |
| Response of Schottky | 233 | 9/19 | S |

LOG BOOK #6

| | | | |
|---|---|---|---|
| New dipole bus setting | 26 | 9/26 | P |
| Bus settings | 33 | 9/27 | P |
| Bus settings | 39 | 9/27 | P |
| Emittance measurements | 42 | 9/28 | P |
| Effect of Debuncher bus on Accumulator tune | 197 | 10/12 | S |

# Debuncher Stochastic Cooling

## LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Schottky signals observed | 247 - 248 | 5/11 | P |
| Schottky signals observed | 285 | 5/14 | P |

## LOG BOOK #2

| | | | |
|---|---|---|---|
| Cooling on and off | 46 | 5/20 | P |
| Alignment study | 58 - 59 | 5/21 | P |
| Tried cooling | 264 - 267 | 6/15 | P |

## LOG BOOK #3

| | | | |
|---|---|---|---|
| Cooling of beam | 81 | 6/25 | S |
| Elect. Centering of D60 vert. arrays | 157 | 7/2 | P |
| Kicker electrical center | 169 | 7/3 | P |
| D60-V1 transverse instability pic. | 172 | 7/5 | P |
| Cooling studies | 213 - 217 | 7/14-15 | P |
| Cooling studies | 231 | 7/17 | P |
| Cooling studies | 233 - 234 | 7/17 | P |
| Cooling studies | 237 - 238 | 7/18 | P |
| Cooling studies | 283 | 7/24 | P |

LOG BOOK #4

| | | | |
|---|---|---|---|
| Cooling rates measured | 26 | 7/29 | P |
| Cooling studies | 105 | 8/11 | P |
| Cooling vs. SEM 806 | 116 | 8/13 | S |
| Cooling vs. SEM 806 | 119 | 8/13 | S |

LOG BOOK #5

| | | | |
|---|---|---|---|
| Stoch. cooling tests | 216 | 9/18 | S |

LOG BOOK #6

| | | | |
|---|---|---|---|
| Signal to noise | 28 | 9/26 | P |
| Tune up | 49 - 59 | 9/28 | P |
| Pin switch timings | 148 | 10/8 | S |

## Debuncher RF Cavities

### LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| DRF-3 turn on params | 117 | 4/23 | P |
| Mountain range pictures of bunch rotation | 237 | 5/5 | P |
| DRF-2 studies | 258 - 259 | 5/12 | P |

### LOG BOOK #2

| | | | |
|---|---|---|---|
| DRF-3 settings | 22 | 5/18 | P |
| DRF-1 set up | 36 | 5/19 | P |
| DRF-1 studies | 78 - 79 | 5/24 | P |
| Mountain range display | 108 - 109 | 5/25 | P |
| DRF-1 studies | 125 - 126 | 5/26 | P |
| DRF-1,2,3 studies | 177 - 180 | 6/2 | S |
| DRF-1 picture when scope triggered at MR extraction | 250 | 6/10 | P |
| DRF-2 pictures | 283 | 6/17 | P |
| Bunch rotation, capture | 288 - 292 | 6/17 | S |
| Bunch rotation | 294 | 6/18 | S |

### LOG BOOK #3

| | | | |
|---|---|---|---|
| DRF-1 studies | 66 - 69 | 6/24 | S |
| DRF-1, R1LLT2/4 vs. $\Delta P$ studies | 78 - 80 | 6/25 | S |

| | | | |
|---|---|---|---|
| DRF-1 cavity drift studies | 98 - 100 | 6/27 | |
| DRF-1 control loop diagram | 105 | 6/28 | P |
| DRF-3 p.4/p.10 recipe | 148 - 149 | 7/1 | P |
| Adiabatic debunching tests | 243 - 246 | 7/18 | S |

LOG BOOK #4

| | | | |
|---|---|---|---|
| DRF-2 studies and pics | 38 - 39 | 8/2 | P |
| Gap monitor pics | 75 - 76 | 8/5 | P |
| Adiabatic debunching, bunch rotation | 117 - 118 | 8/13 | S |

LOG BOOK #5

| | | | |
|---|---|---|---|
| Bunch rotated | 123 | 9/8 | S |
| Debunching phase optimized and $\Delta P/P$ minimized | 136 - 137 | 9/9 | P |
| Improve capture | 170 | 9/15 | P |
| Bunch rotation | 209 - 211 | 9/17 | S |
| Optimization of MR bunch width | 213 | 9/17 | S |
| MR bunch rotation picture | 214 | 9/17 | S |
| Picture of batch injected into Debuncher | 215 | 9/17 | S |
| Adiabatic debunching | 273 | 9/22 | S |
| Bunch rotation, adiabatic debunching | 282 - 284 | 9/22 | S |

## Debuncher Injection & Extraction Kickers

### LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Precautions & info | 41 | 4/6 | P |
| D:IKIK settings | 49 | 4/6 | P |
| D:IKIK settings | 56 | 4/6 | P |
| D:IKIK settings | 97 | 4/21 | P |
| D:IKIK settings | 126 | 4/24 | P |
| D:IKIK settings | 198 | 5/3 | S |
| D:IKIK settings | 201 | 5/3 | S |

### LOG BOOK #2

| | | | |
|---|---|---|---|
| D:IKIK settings | 6 | 5/17 | P |
| D:EKIK setup | 72 - 73 | 5/23 | P |

### LOG BOOK #4

| | | | |
|---|---|---|---|
| Block diagram of synchronized Deb. extr. | 24 | 7/29 | P |
| Delay pulse generator for D:IKIK replaced | 201 | 8/23 | P |

### LOG BOOK #5

| | | | |
|---|---|---|---|
| Kicker settings | 38 | 9/4 | P |
| Beam loss vs. voltage on D:IKIK | 178 | 9/15 | P |

| | | | |
|---|---|---|---|
| D:EKIKP vs. D:IBEAM | 185 | 9/16 | P |

LOG BOOK #6

| | | | |
|---|---|---|---|
| D:IKIK settings | 116 | 10/4 | S |

## Debuncher Septa

LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| D:ISEPV setting | 51 | 4/7 | P |

LOG BOOK #4

| | | | |
|---|---|---|---|
| Radiation survey | 69 | 8/4 | P |
| Timing pic's | 139 - 140 | 8/16 | P |

## Debuncher BPM's

LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Instructions for using | 54 | 4/7 | P |

LOG BOOK #2

| | | | |
|---|---|---|---|
| Measured intensity output of BPM RF module | 43 - 44 | 5/19 | P |

## AP-1 BeamLine

### LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Tuning | 2 - 4 | 3/28-29 | P |
| Tuning | 17 - 21 | 3/31-4/5 | P |
| Improved tune summary | 23 - 29 | 4/5 | P |

### LOG BOOK #3

| | | | |
|---|---|---|---|
| Tuning | 170 - 171 | 7/5 | P |
| New file | 174 | 7/5 | P |
| SEM update | 184 | 7/10 | P |
| AP-1/AP-2 mismatch estimate | 187 | 7/11 | P |

### LOG BOOK #5

| | | | |
|---|---|---|---|
| Note on 120 GeV operation | 194 | 9/16 | S |

## AP-2 Beamline

### LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Tuning, loss monitors | 6 - 16 | 3/29-30 | P |
| Tuning summary | 33 - 37 | 4/6 | P |
| Tuning | 63 | 4/13 | P |
| Radiation Survey | 83 - 84 | 4/14 | P |
| Pulsed magnet studies | 132 - 135 | 4/26-27 | P |
| Toroid measurements | 138 | 4/27 | P |
| Target/lens studies | 140 - 148 | 4/27 | S |
| Pulsed magnet settings | 159 | 4/29 | S |
| Cerenkov studies | 160 - 166 | 4/29 | S |
| Tuning | 172 - 177 | 4/29-30 | S |
| IB-1 calibration | 287 - 288 | 5/14 | P |

### LOG BOOK #2

| | | | |
|---|---|---|---|
| AP-1, AP-2 steering | 37 - 39 | 5/19 | P |
| Lens alignment studies | 53 - 56 | 5/20-21 | P |
| Tuning | 156 - 162 | 5/31-6/1 | S |
| Tuning | 239 | 6/9 | P |
| Tuning | 285 | 6/17 | S |

LOG BOOK #3

| | | | |
|---|---|---|---|
| DCCT/Tor109 studies | 92 - 93 | 6/26 | P |
| IQ28 ion chamber data | 151 | 7/2 | |
| AP-1/AP-2 mismatch estimate | 187 | 7/11 | P |
| "SEM TEST EVENT GEN", J. Zagel | 229 | 6/25 | |

LOG BOOK #5

| | | | |
|---|---|---|---|
| Settings for lens, magnets, collimators | 4 | 9/2 | P |
| Comparison of AP-2 beam sizes with D. Johnson's note of 8/23/85 | 121 | 9/8 | S |
| Collimator settings | 130 | 9/8 | P |
| Note on 120 GeV operation | 194 | 9/16 | S |
| IB-1, IB-2 studies | 206 | 9/17 | S |

## AP-3 Beamline

### LOG BOOK #1

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Tuning | 232 - 233 | 5/5 | P |

### LOG BOOK #2

| | | | |
|---|---|---|---|
| Tuning | 192 - 194 | 6/3 | P |
| Tuning | 299 | 6/18 | S |

### LOG BOOK #3

| | | | |
|---|---|---|---|
| SEM update | 184 | 7/10 | P |

### LOG BOOK #5

| | | | |
|---|---|---|---|
| Note on reverse injection of protons | 149 | 9/14 | P |

### LOG BOOK #6

| | | | |
|---|---|---|---|
| Beam extracted | 112 - 113 | 10/3 | S |
| Beam extracted | 128 - 129 | 10/5 | S |
| Beam extracted | 156 - 157 | 10/9 | S |
| Beam extracted | 175 - 179 | 10/10 | S |
| Beam extracted | 189 - 196 | 10/12 | S |
| Final beam extracted | 198 | 10/13 | S |

## D/A Beamline

### LOG BOOK #2

| Activity | Page No. | Date | Beam |
|---|---|---|---|
| Beam extracted from Deb | 113 | 5/25 | P |

### LOG BOOK #3

| | | | |
|---|---|---|---|
| SEM update | 184 | 7/10 | P |
| 1st D/A line beam thru | 195 | 7/13 | P |
| Transmission studies | 274 - 278 | 7/20-22 | P |
| Beam steering | 293 | 7/26 | P |
| Timing schemes for Deb extr/Acc. inj | 295 - 296 | 7/26 | P |

### LOG BOOK #4

| | | | |
|---|---|---|---|
| Deb extr/Acc. inj. synched operation | 34 - 35 | 8/1 | P |
| Tuning, documentation on AP-1, AP-2, Deb, D/A | 60 - 61 | 8/4 | P |
| New improved Deb to Acc. transfer | 87 | 8/9 | P |

### LOG BOOK #5

| | | | |
|---|---|---|---|
| New clock event scheme | 95 - 97 | 9/6 | P |
| Tuning | 119 | 9/7 | S |
| Efficiency | 188 | 9/16 | P |

| | | | |
|---|---|---|---|
| Efficiency using new tune | 230 | 9/19 | S |

LOG BOOK #6

| | | | |
|---|---|---|---|
| Transfer efficiency | 119 | 10/3 | S |
| Tuning | 124 | 10/5 | S |
| Transfer efficency close to 100% | 151 | 10/8 | S |