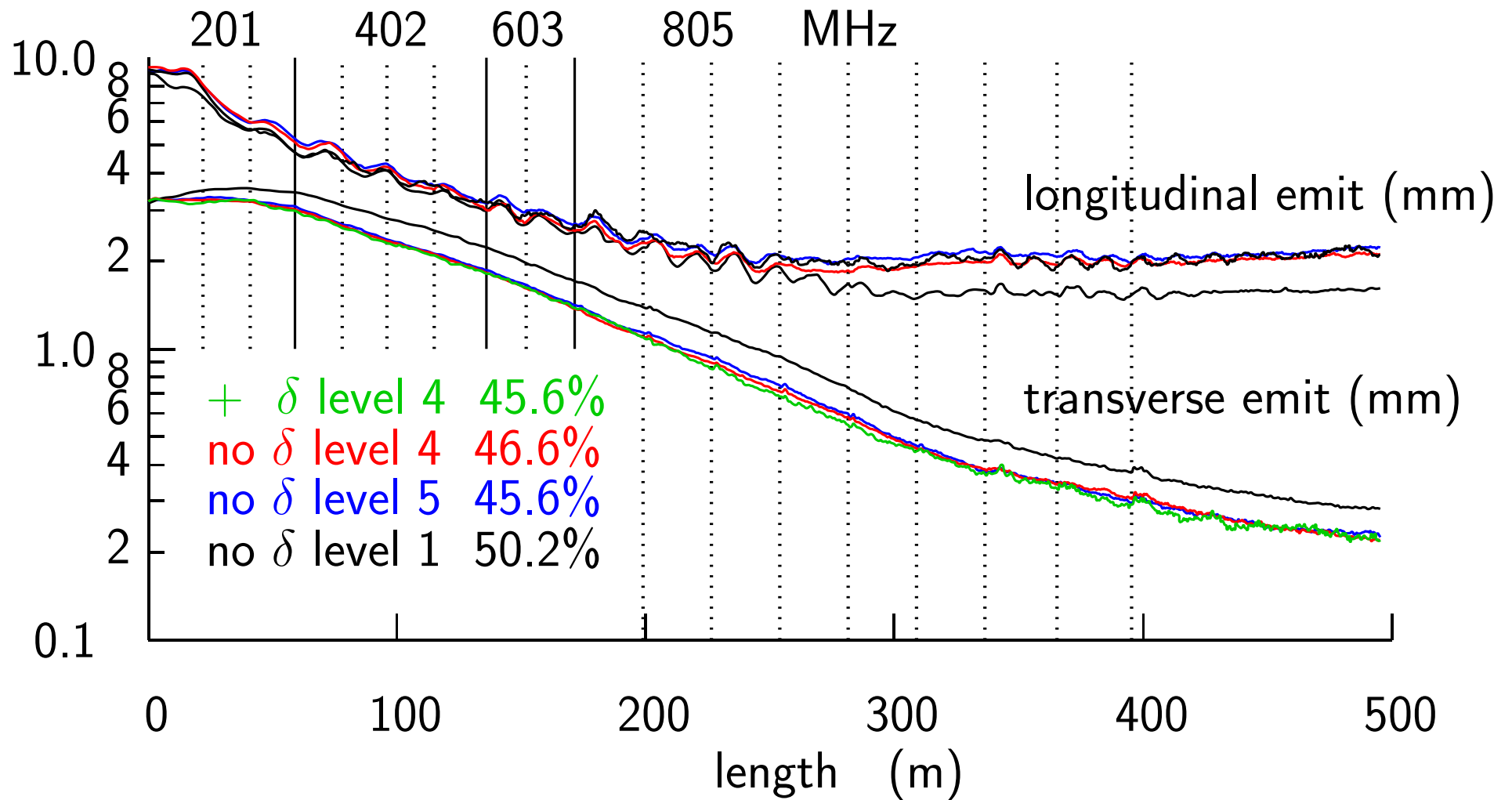


ICOOOL Simulations with straggling models

Bob Palmer

9/17/12

6D cooling after merge

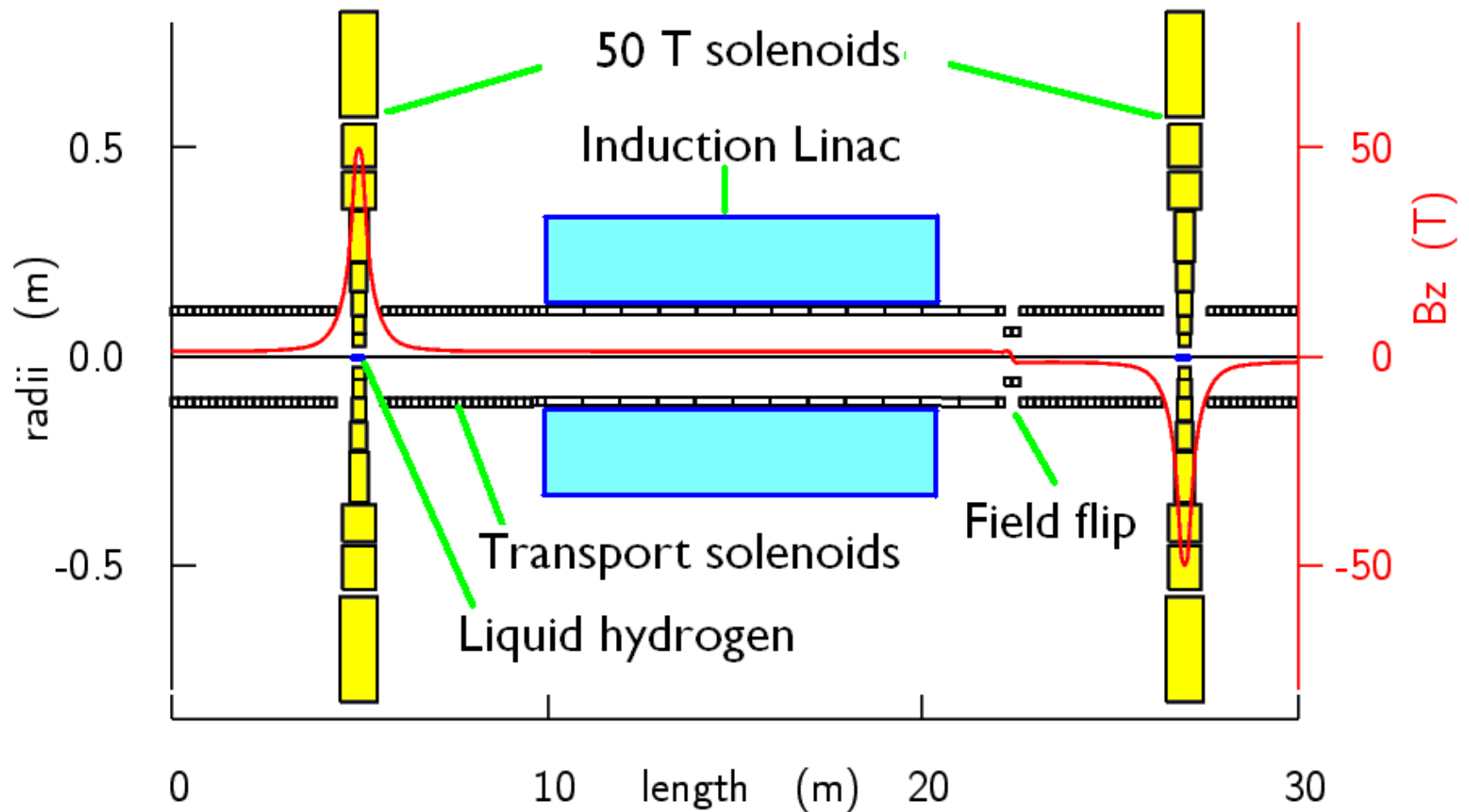


Summary of 6D

| | ϵ_{\perp} | ϵ_{\parallel} | transm. |
|---------------------|--------------------|------------------------|---------|
| | μ m | mm | % |
| with deltas strag=4 | 226 | 2.1 | 45.6 |
| no deltas strag=4 | 221 | 2.12 | 46.6 |
| no deltas strag=5 | 220 | 2.23 | 45.6 |
| no deltas strag=1 | 282 | 1.62 | 50.2 |

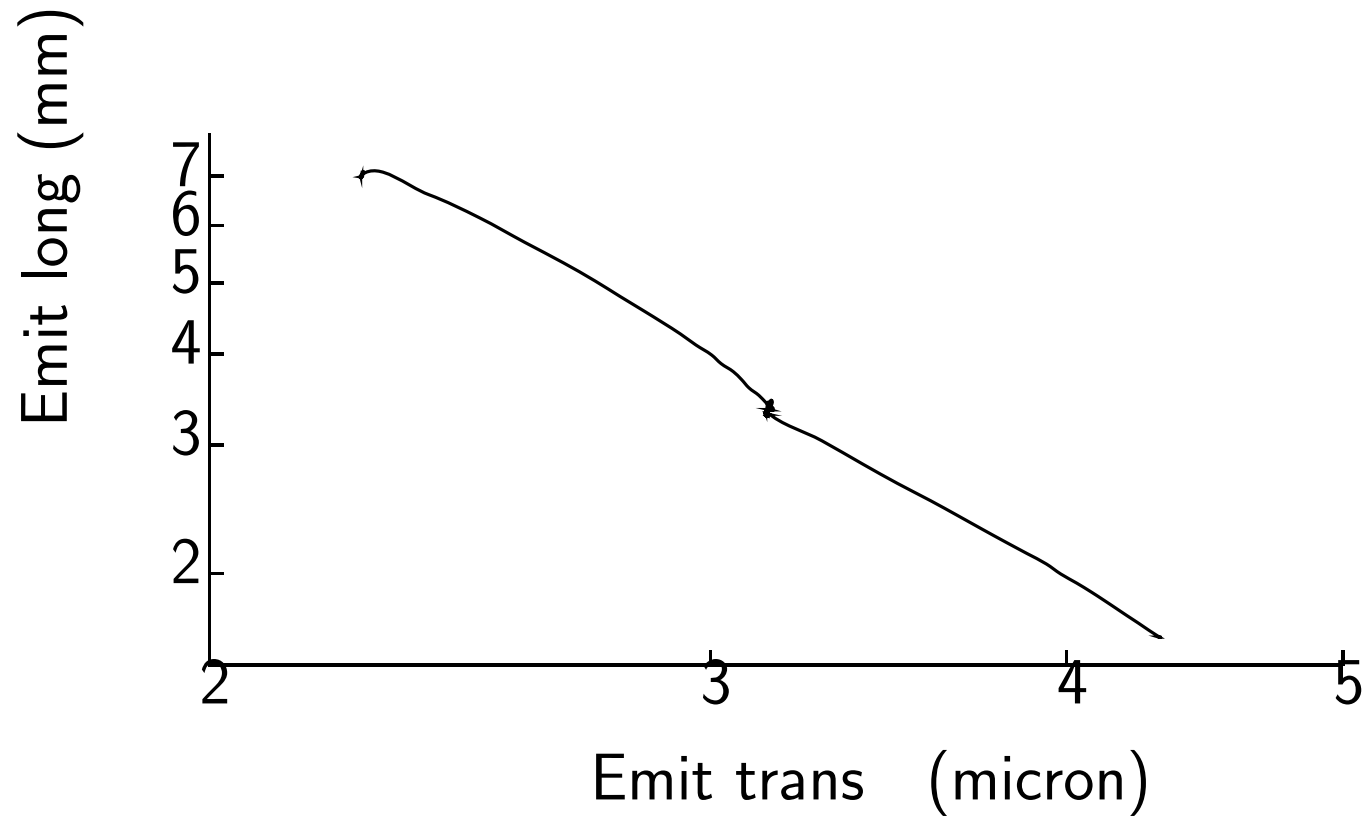
Only significant difference is with straggling level 1 (Gaussian) that give a smaller longitudinal emittance, better transmission and worse transverse emittance

last 2 stages of Final Cooling

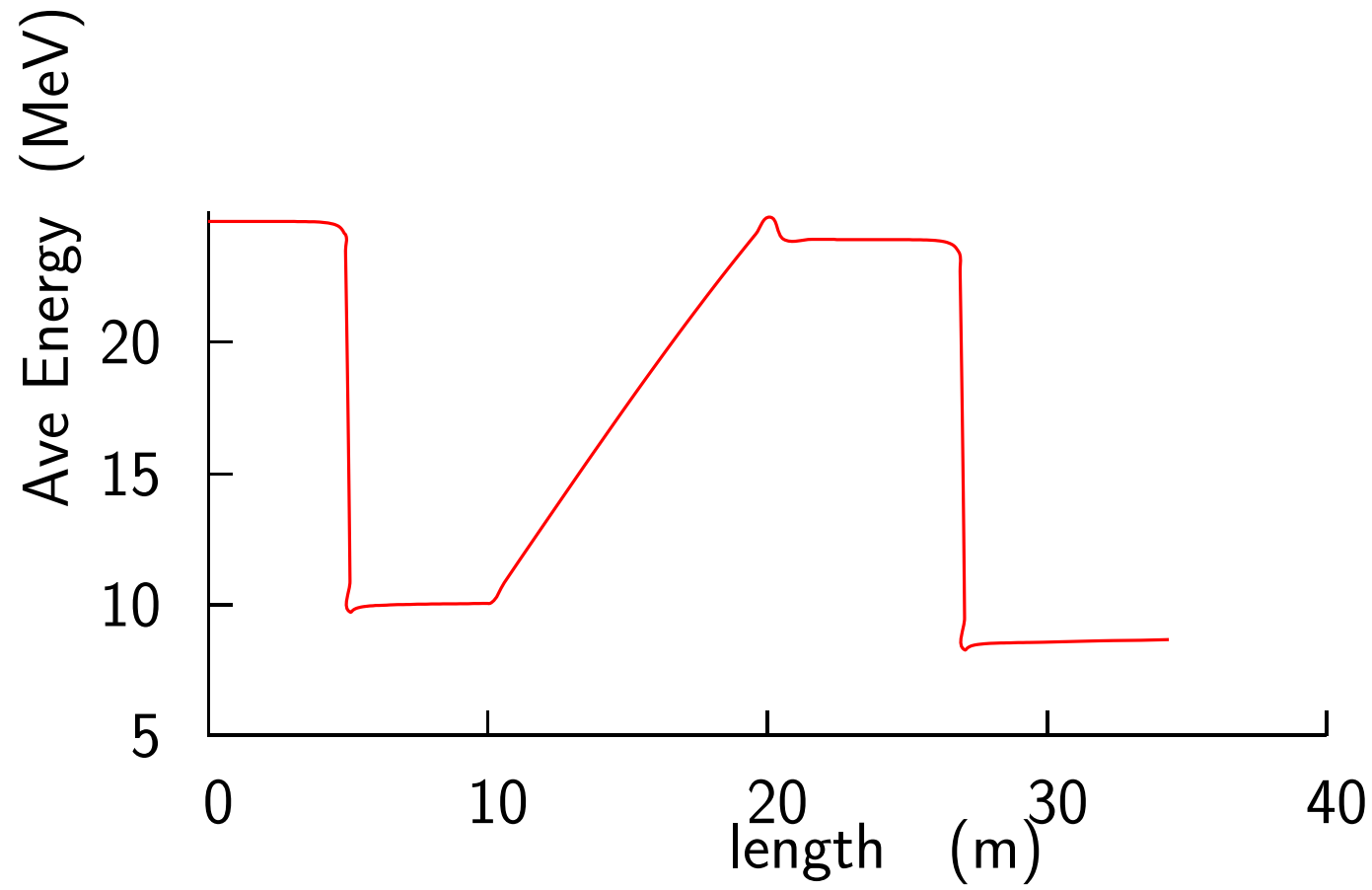


- This example is from the 50 T sequence
- It includes the final and penultimate stages

Emittances



Energy



Conclusion for Final Cooling

| | ϵ_{\perp} $\mu\text{ m}$ | ϵ_{\parallel} mm | transm. % |
|---------------------|--------------------------------------|------------------------------|--------------|
| Initial | 43.1 | 16.39 | 100 |
| with deltas strag=4 | 24.3 | 68.75 | 87.7 |
| no deltas strag=4 | 24.6 | 72.34 | 87.6 |
| no deltas strag=5 | 24.3 | 69.0 | 87.76 |
| no deltas strag=1 | 24.15 | 71.4 | 87.8 |

No statistically significant differences