
Energy Loss Analysis

Scott Wilbur

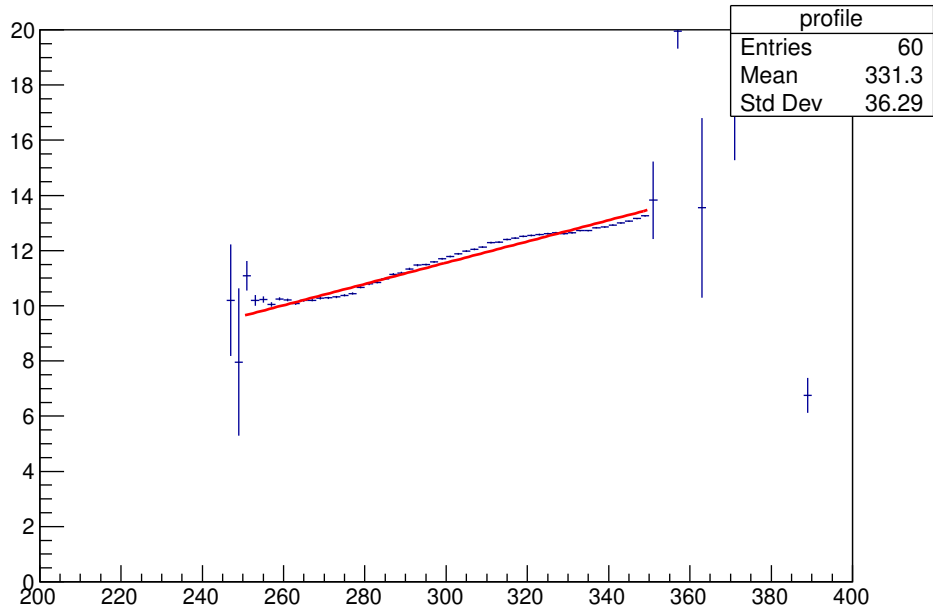
University of Sheffield

Recent Developments

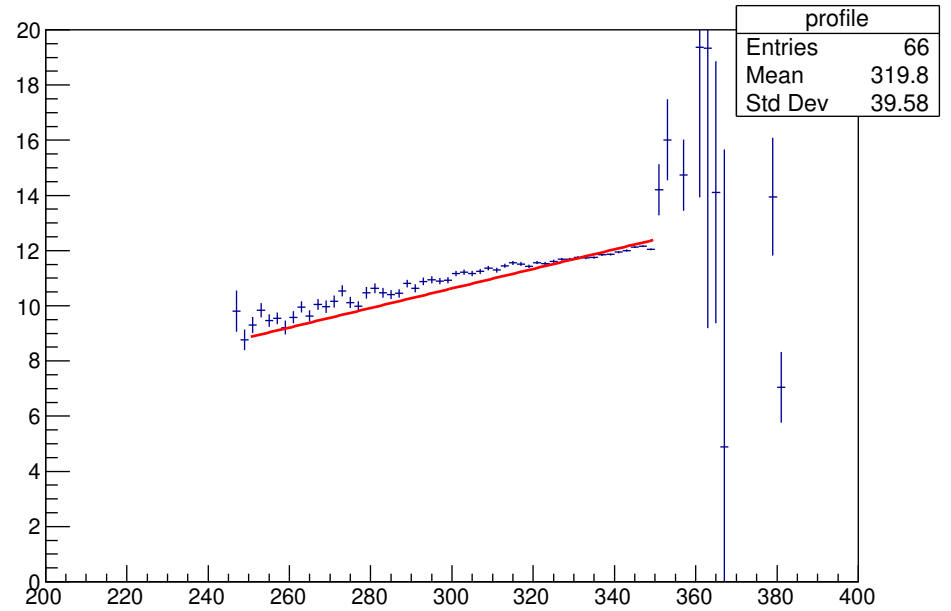
- Plots now showing energy loss instead of momentum loss
- Calculating empty-absorber energy loss as a function of Al path length
- Taking into account both LH2 windows and safety windows
- Correcting full-absorber energy loss by Al path length

Energy Loss in LH₂

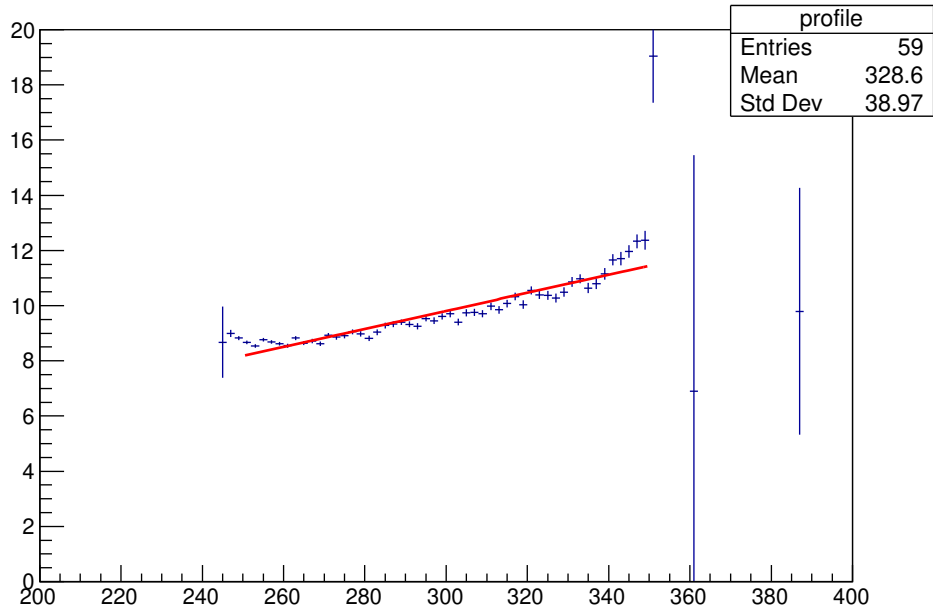
Energy Loss (LH2 Full) vs LH2 Path Length (140 MeV)



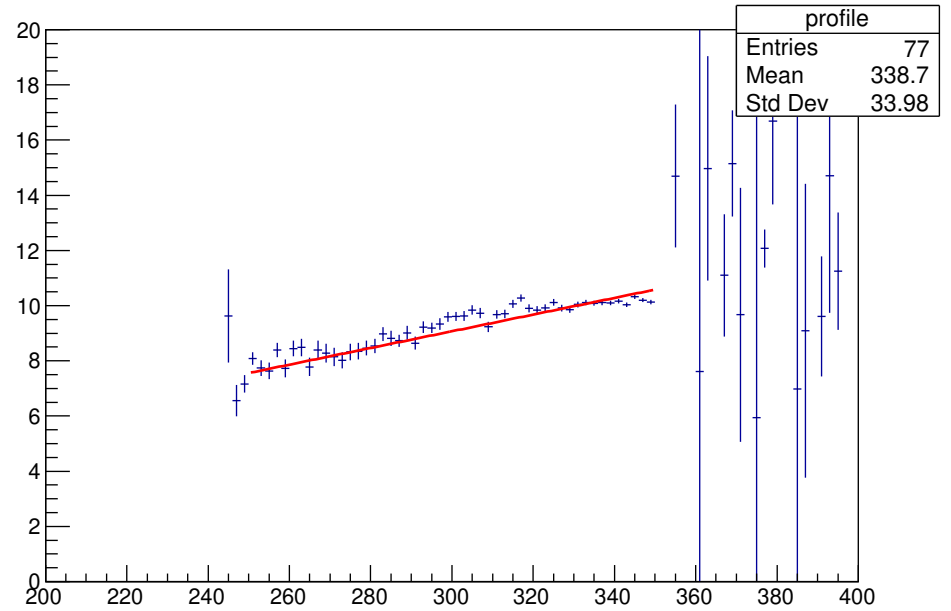
Energy Loss (LH2 Full) vs LH2 Path Length (170 MeV)



Energy Loss (LH2 Full) vs LH2 Path Length (200 MeV)



Energy Loss (LH2 Full) vs LH2 Path Length (240 MeV)



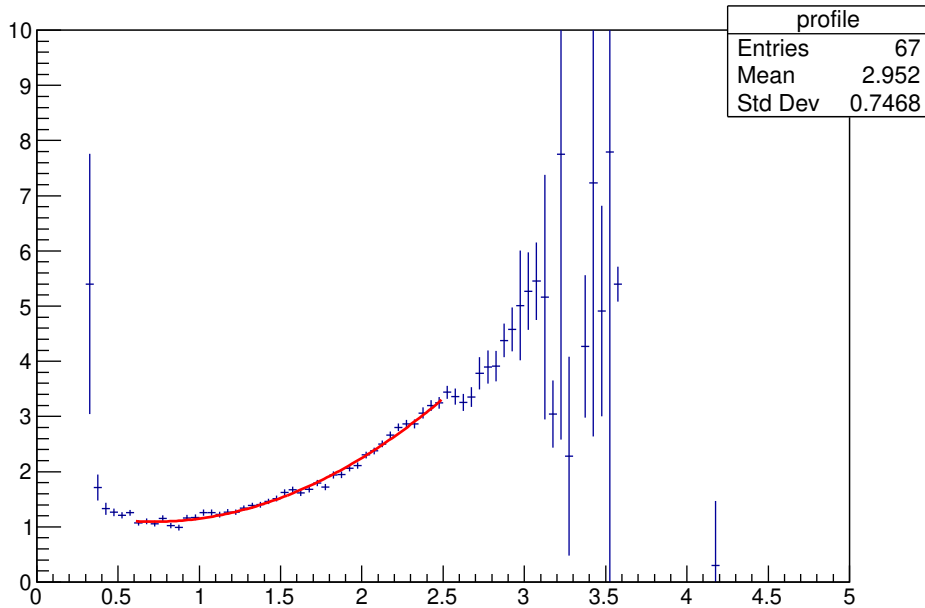
Energy Loss in LH₂

	Measured	nominal PDG
140	0.385	0.361
170	0.354	0.327
200	0.327	0.311
240	0.302	0.297

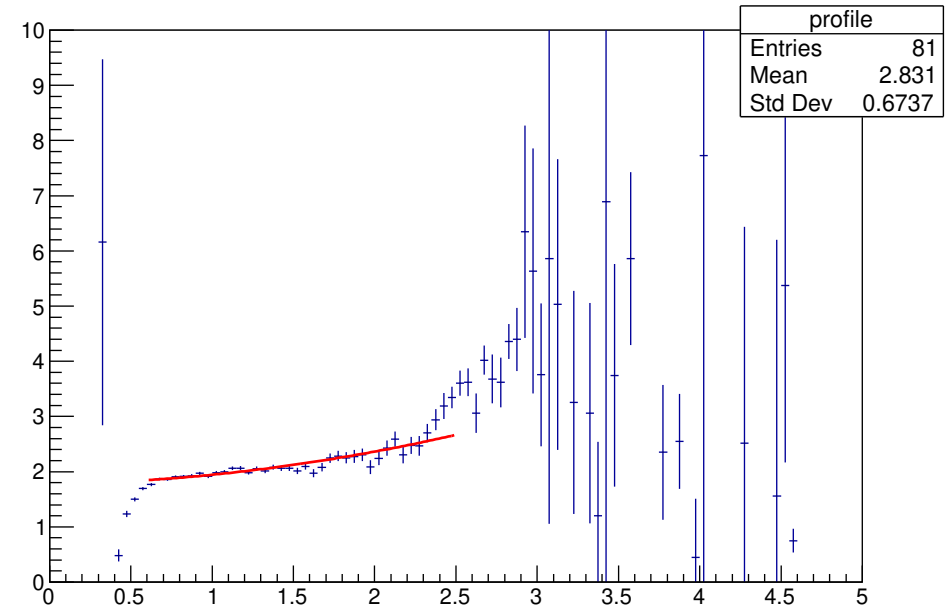
(results are in MeV/cm)

How the Sausage is Made

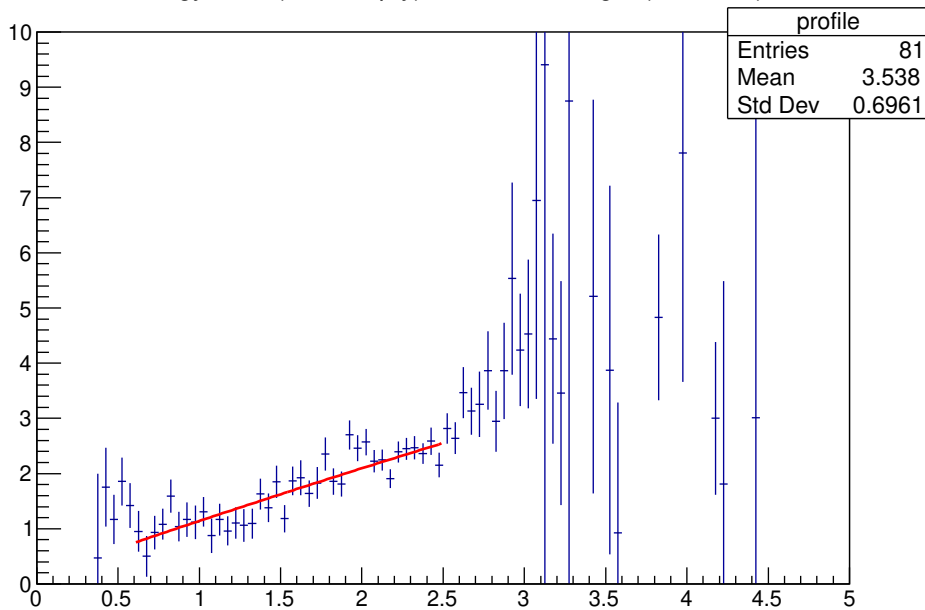
Energy Loss (LH2 Empty) vs Al Path Length (140 MeV)



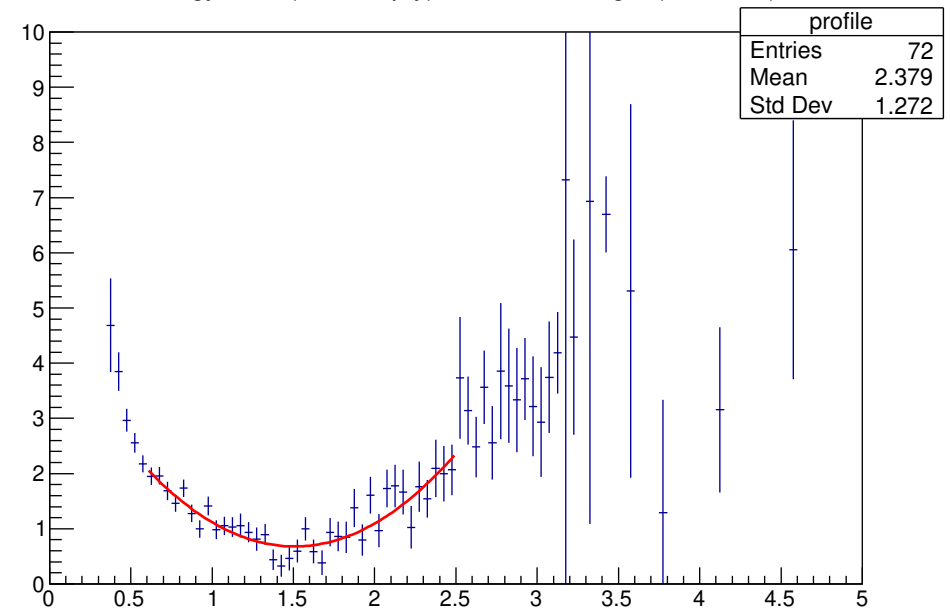
Energy Loss (LH2 Empty) vs Al Path Length (170 MeV)



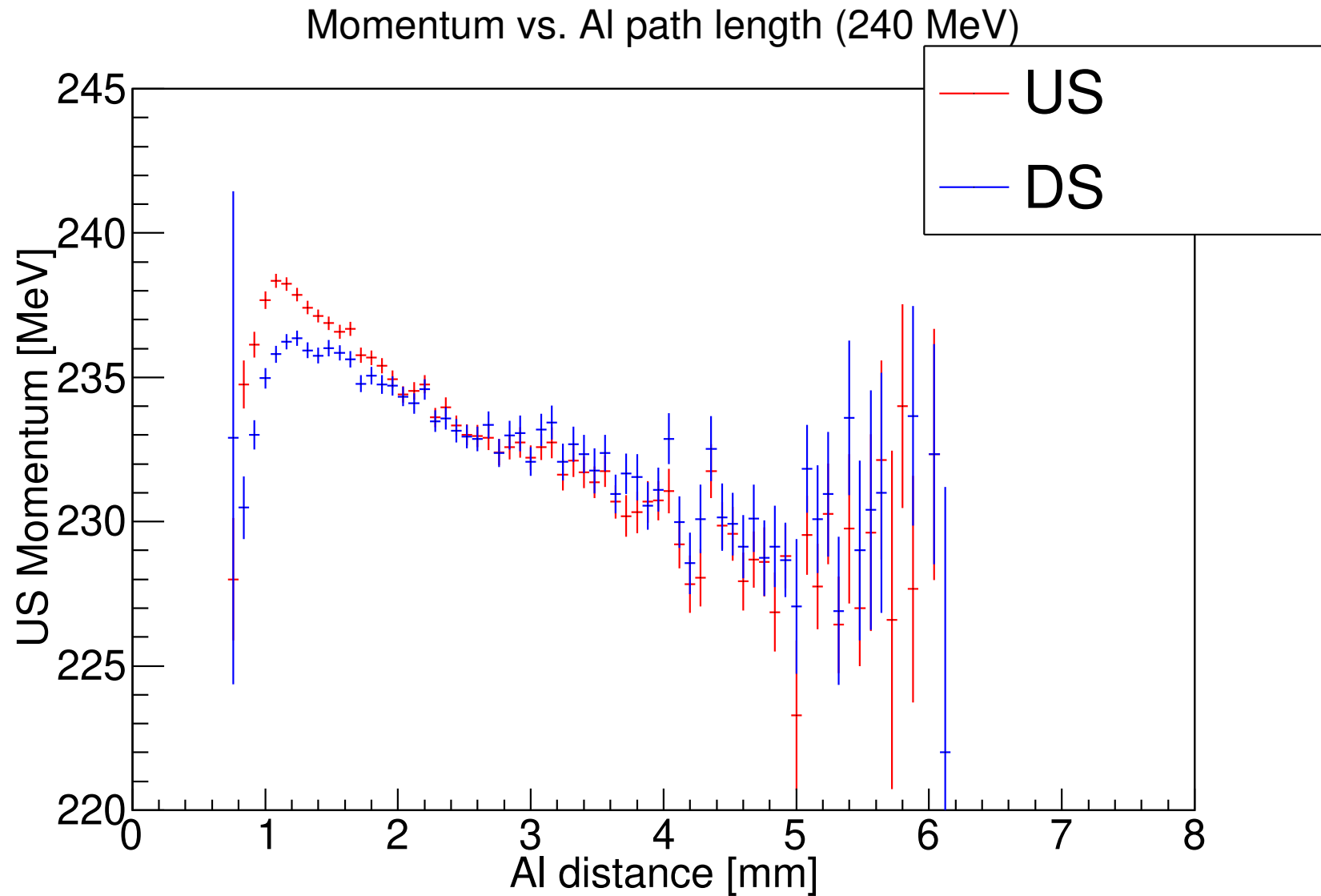
Energy Loss (LH2 Empty) vs Al Path Length (200 MeV)



Energy Loss (LH2 Empty) vs Al Path Length (240 MeV)



Different US and DS Measurements



- Different momentum at edges of beam? (doesn't explain US/DS difference)
- Different measurement at edges of beam? (difficult to correct for)