Diagrams from negative ion measurements

Kees Ligtenberg

Lepcol meeting

March 9, 2020



Kees Ligtenberg (Nikhef)

Negative ion measurements

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Niklhef

Negative ion measurements

Run 1036–1041 and run 1042

- Ar/iC4H10/CS2 95/4.5/0.5 gas mixture
- $\,$ o Drift field is $-150\,V/cm$ to $-400\,V/cm$ and $-280\,V/cm$
- ${\scriptstyle \bullet \ }$ Grid voltage is $-380\,V$

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Hitmap

Projection on XY plane (not on quad plane)



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Number of hits



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Time over threshold



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Drift velocity



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z residual as function of drift distance

A second ion type is visible for the longer drift distances



Hit resolution in longitudinal direction

There is some uncertainty because of the second ion



Hit resolution in transverse direction



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Drift velocity as a function of field strength



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Estimate of longitudinal diffusion coefficient

with only 3 points in z per field strength



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Estimate of transverse diffusion coefficient

with only 3 points in z per field strength



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Event display



Negative ion measurements

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Event display



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