

Modulator simulations

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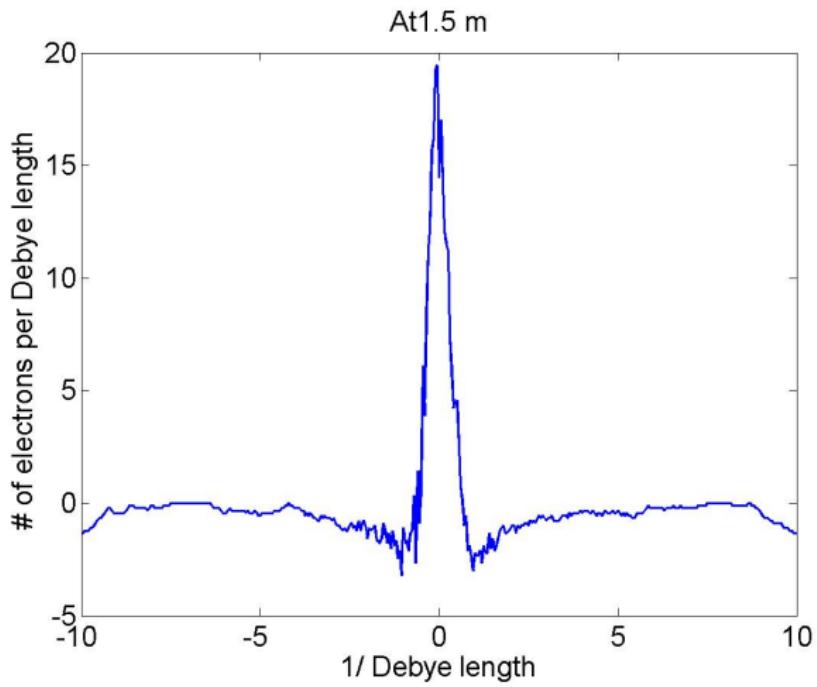
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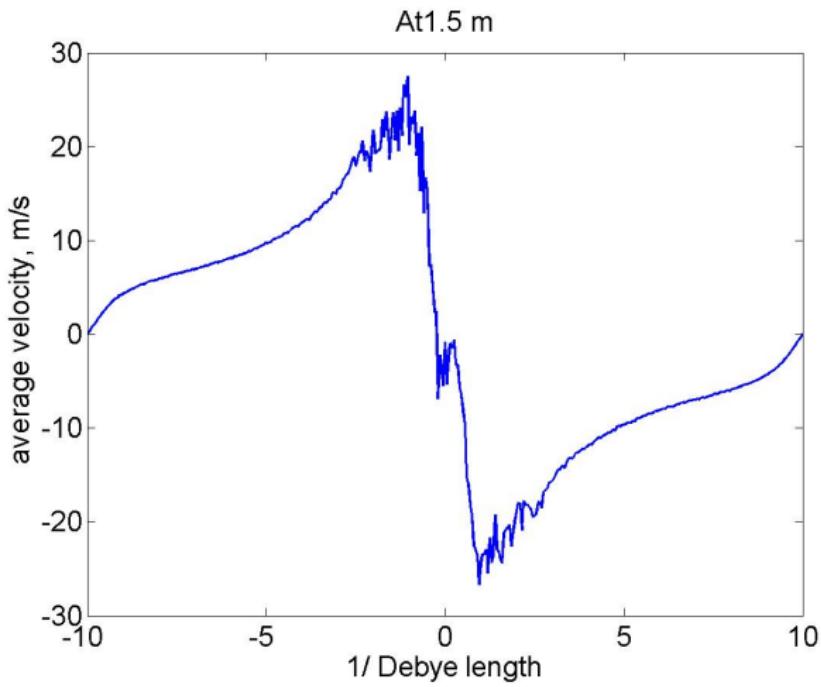
Numerical setting

- Domain
 - Transversal : $4e-3m$ ($14 \times Debyelength$) open boundary
 - Longitudinal : $2e-5m$ ($20 \times Debyelength$) periodic boundary
- Grid number : 20 per Debye length
- Electron
 - Gaussian in x, y
 - Uniform in z
- Ion
 - At $x=y=z=0$
 - At $y=z=0, x=1e-3$

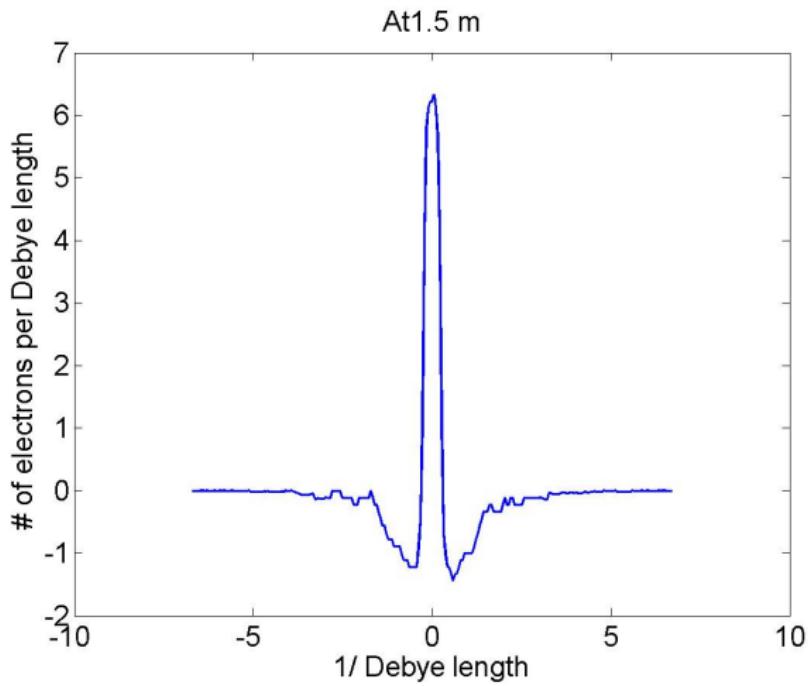
Longitudinal number distribution



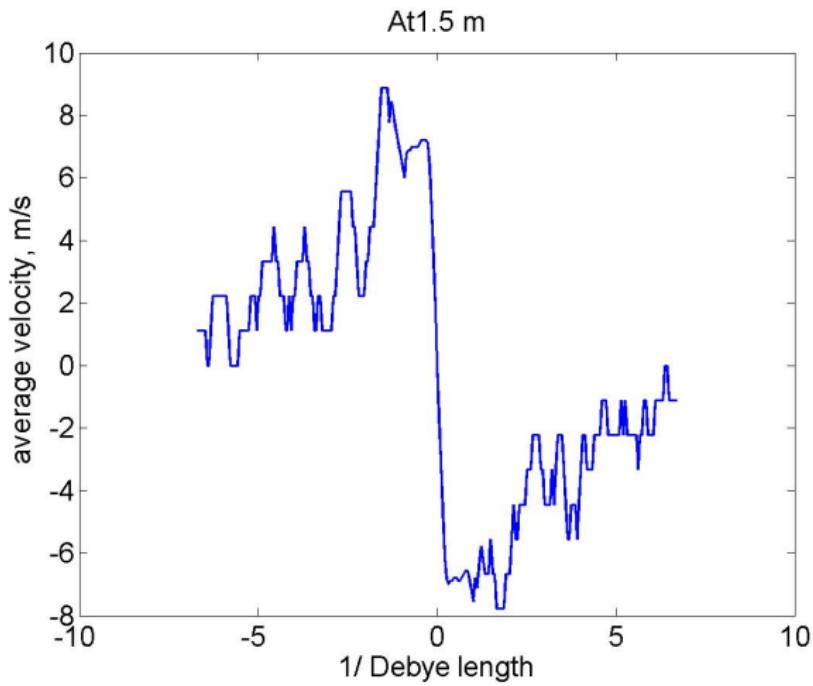
Longitudinal velocity distribution



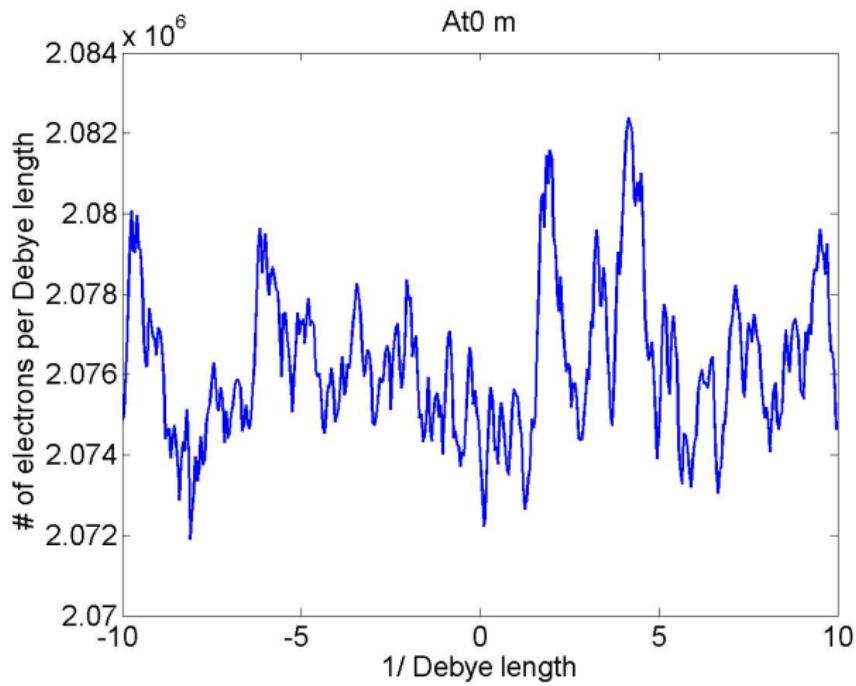
Transversal number distribution



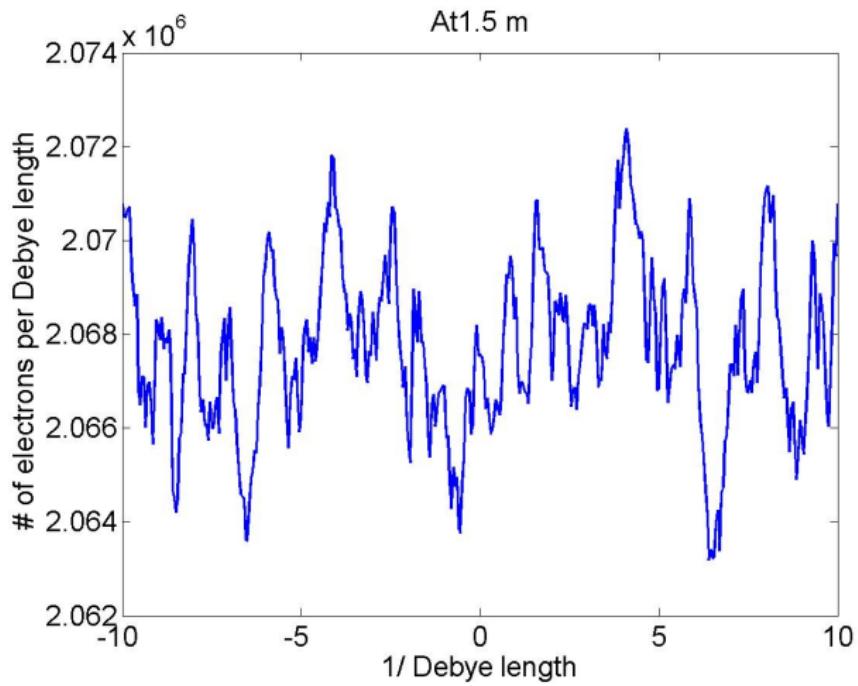
Transversal velocity distribution



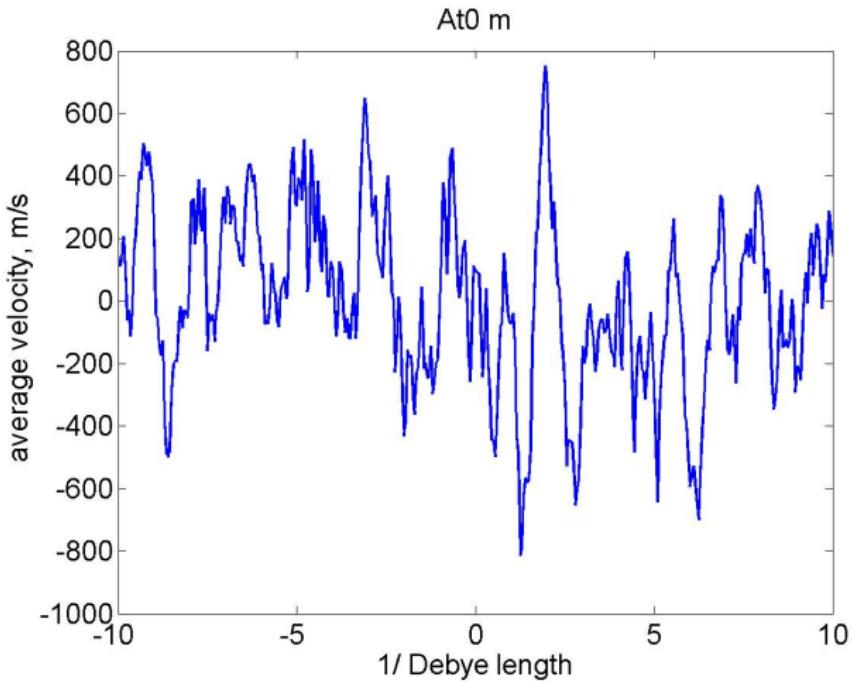
Longitudinal number distribution



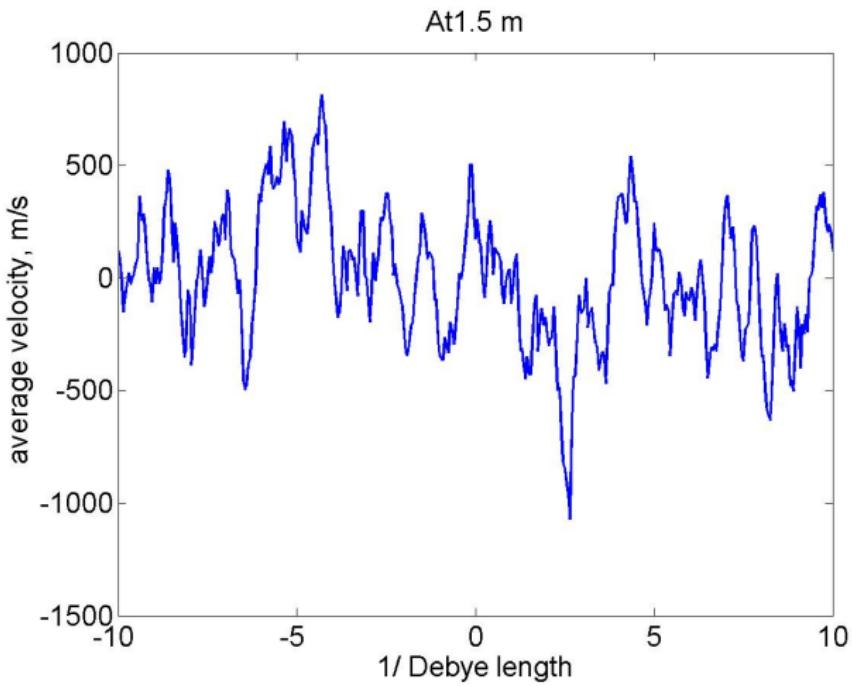
Longitudinal number distribution



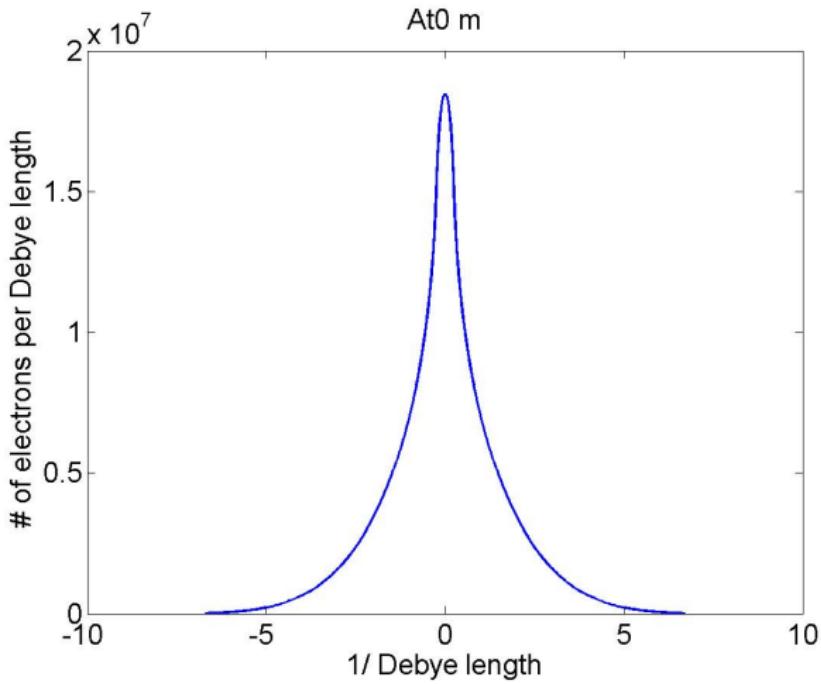
Longitudinal velocity distribution



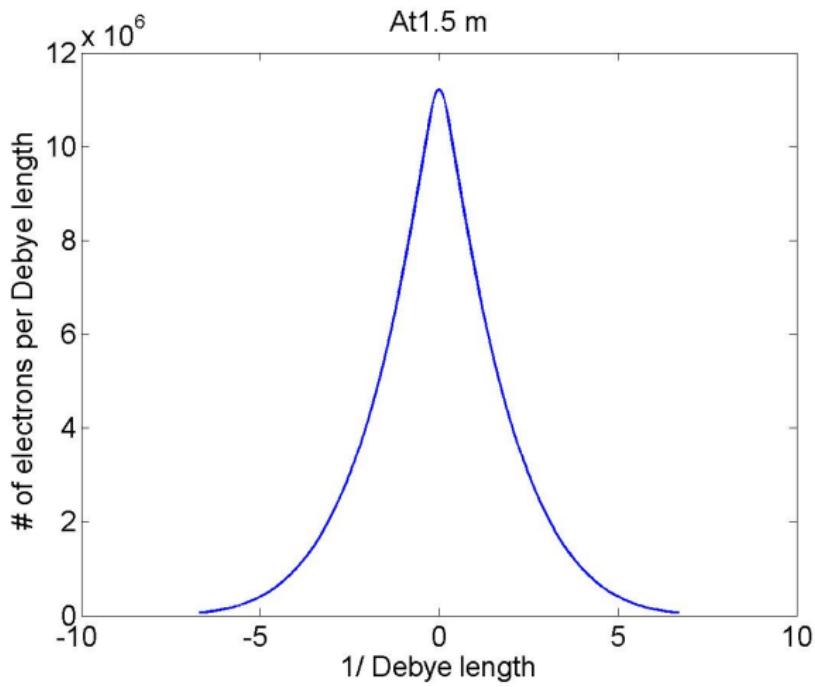
Longitudinal velocity distribution



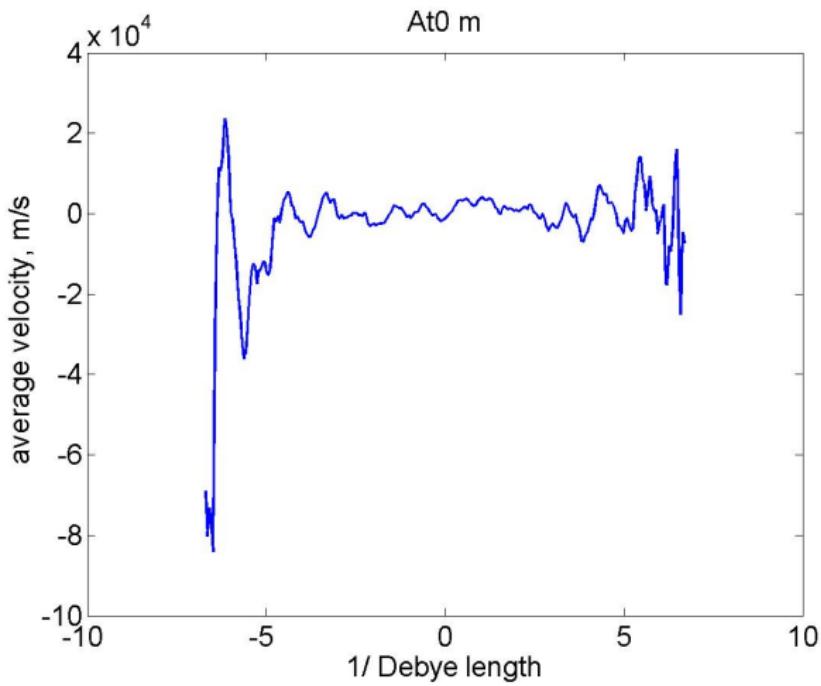
Transversal number distribution



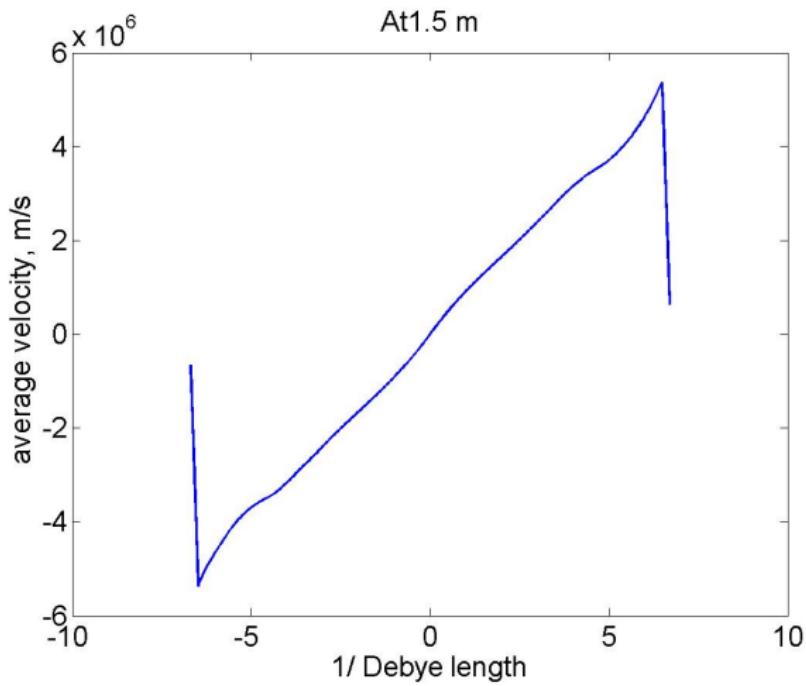
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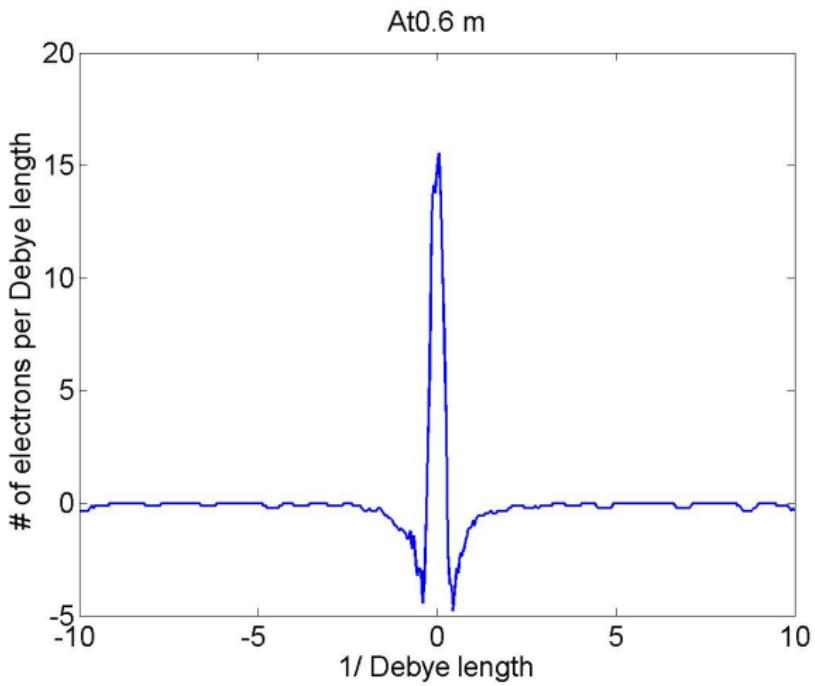
Transversal velocity distribution



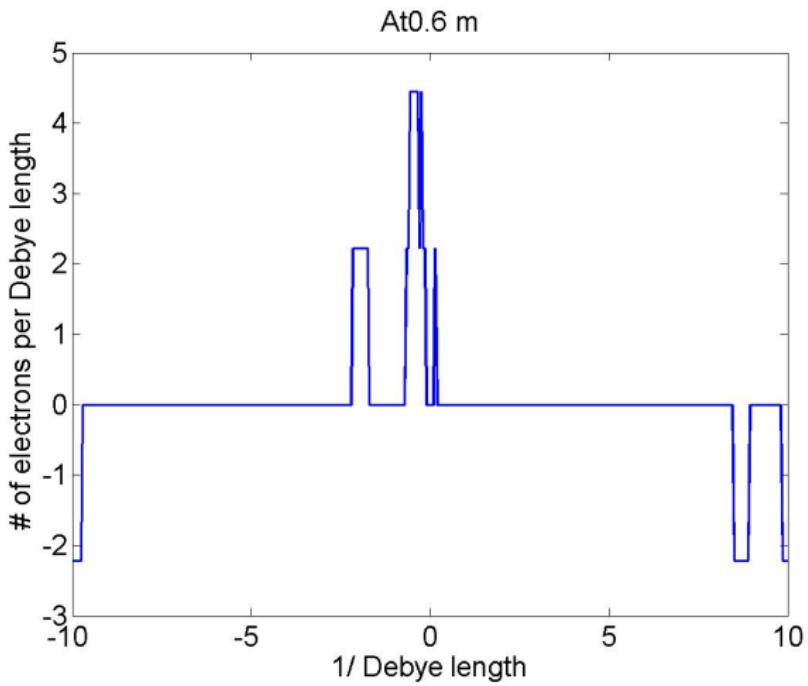
Transversal velocity distribution



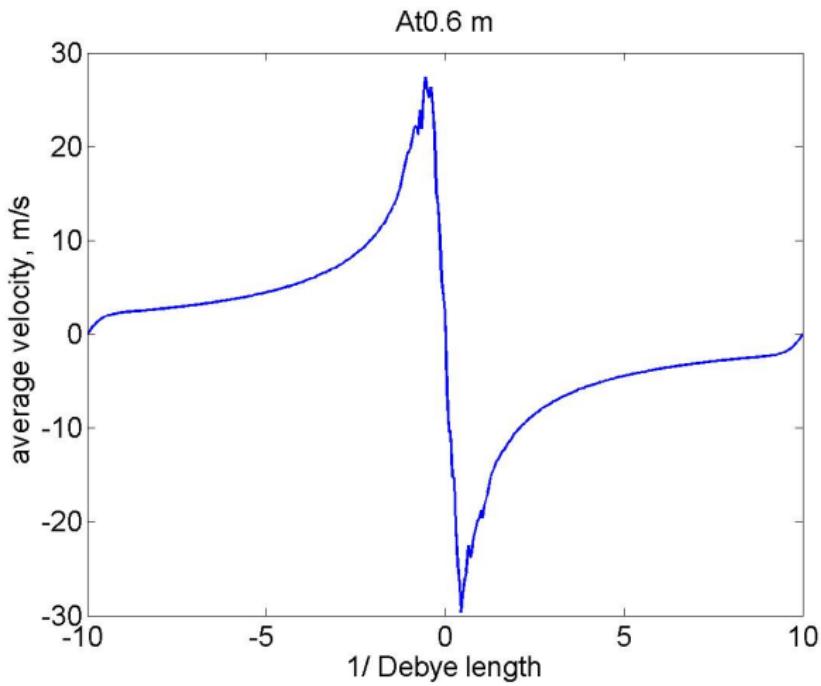
Longitudinal number distribution ion at center



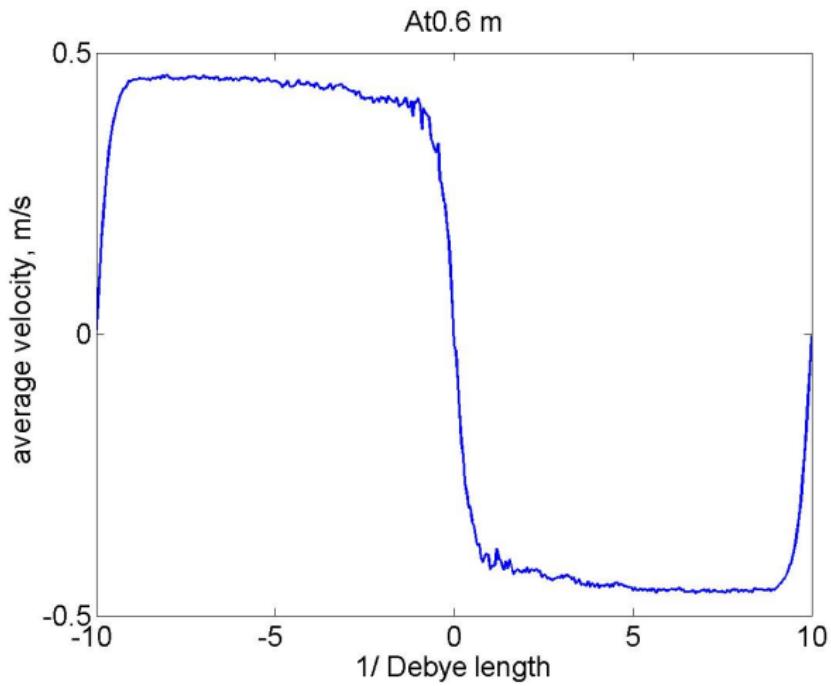
Longitudinal number distribution ion at edge



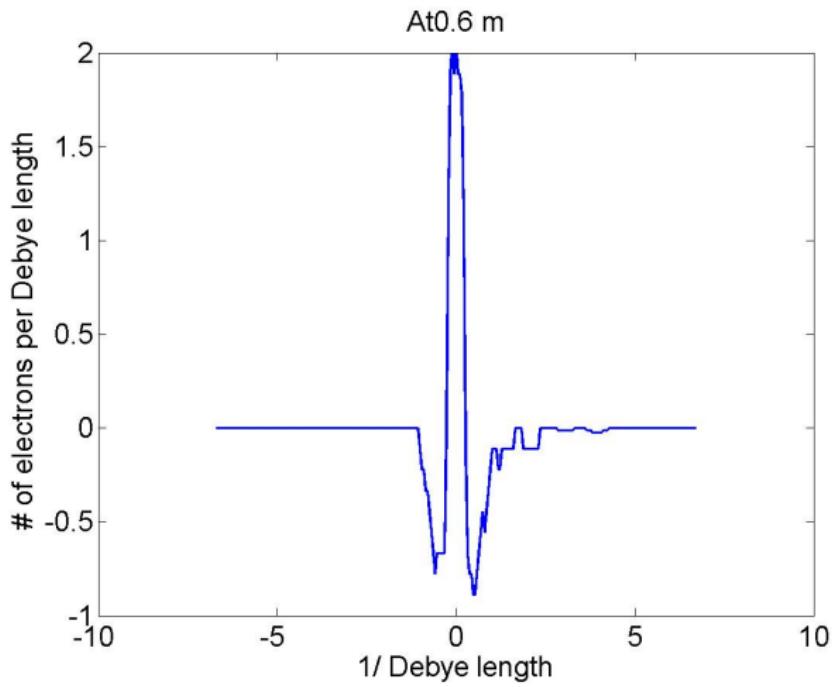
Longitudinal velocity distribution ion at center



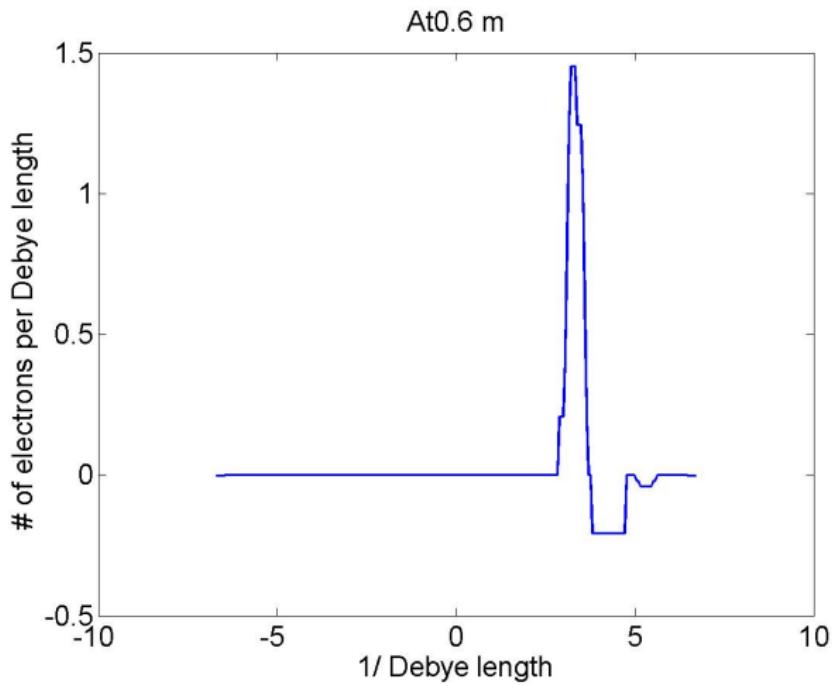
Longitudinal velocity distribution ion at edge



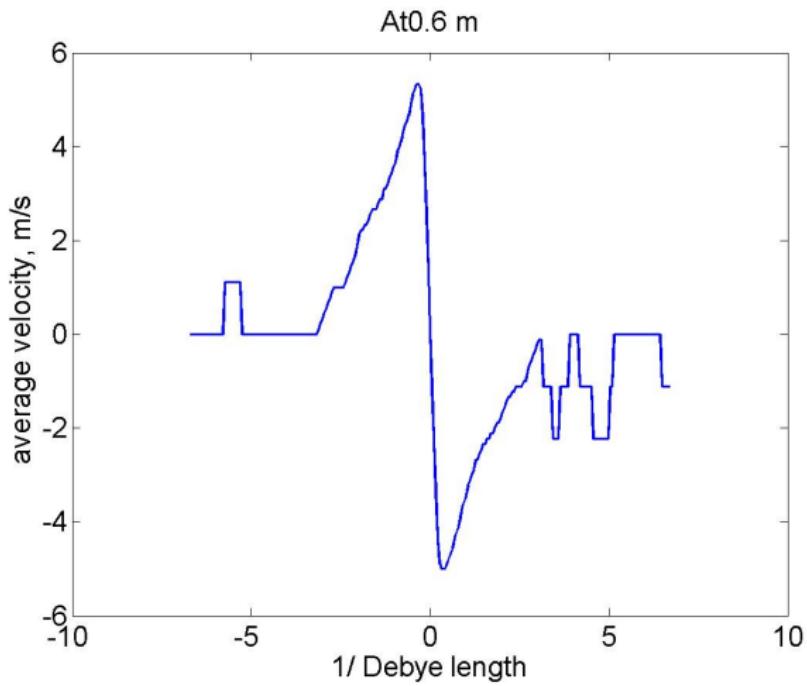
Transversal number distribution ion at center



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