

# Transit time spreads in biased paracentric hemispherical deflection analyzers

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The time-of-flight distributions in a biased paracentric HDA [1,2] with the three different entry positions,  $R_0 = 82.55$  mm, 101.6 mm, and 116 mm, have been studied. The trajectory related time spreads of the electrons were calculated numerically since their flight times are not predictable analytically in the fringing field HDA. Our analysis quantifies the effect of varying the controllable input variables of entry position, source size, acceptance angle, and energy spread on selected output variables of transit time and time spread. The present simulations demonstrates that for a realistic distribution with energy spread, angular spread, and finite source size, the biased paracentric HDA offers improved time distribution with relatively high energy resolution compared to that of the conventional centric HDA.

## References

[1] Omer Sise et al. *Meas. Sci. Technol.* **18** (2007) 1853–1858

[2] T.J.M. Zouros et al. *Meas. Sci. Technol.* **17** (2006) N81–N86

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