

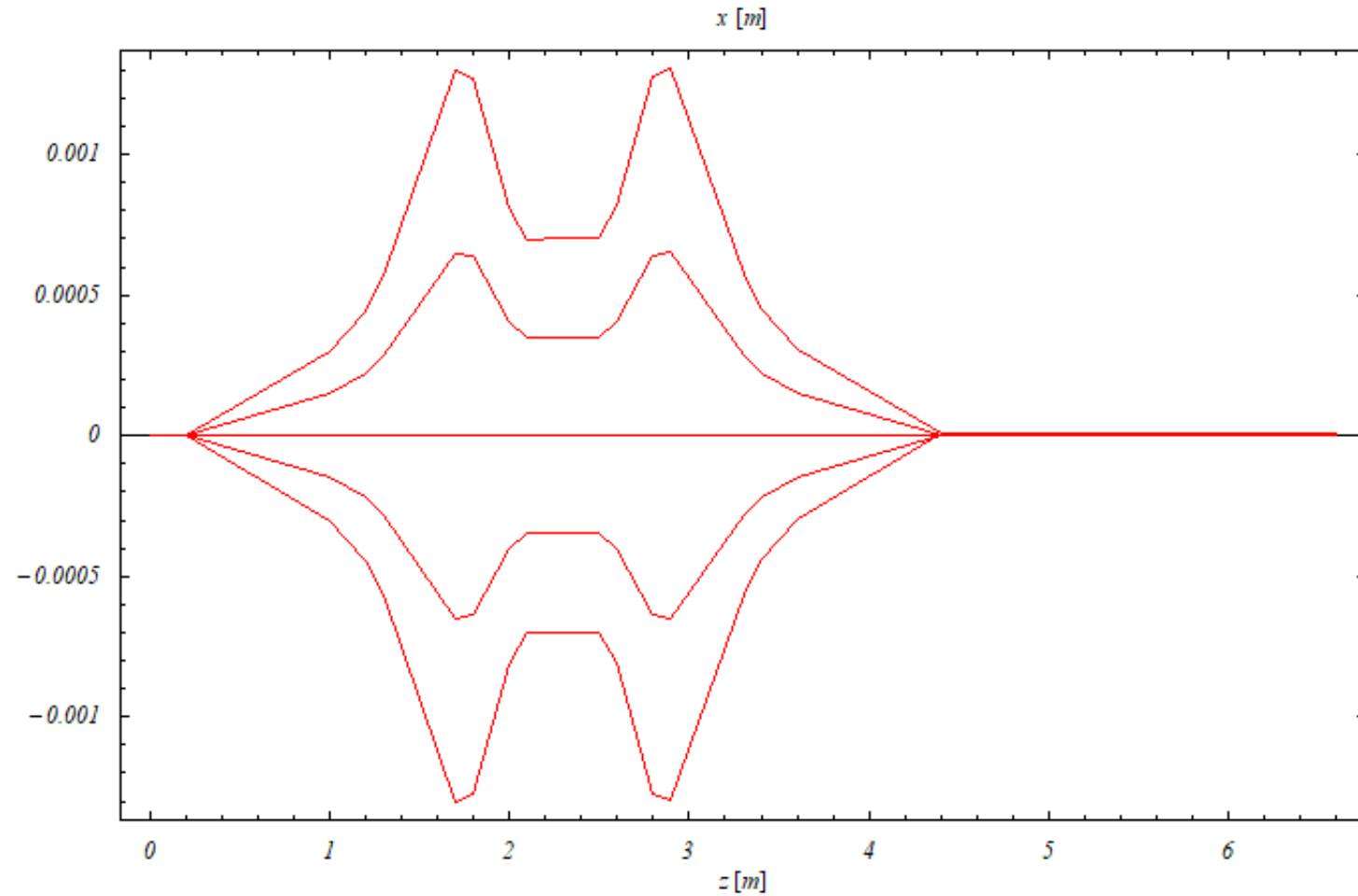
Study of beam dynamics in the Stage 1 arc - update

J.Pasternak, 03/11/2025

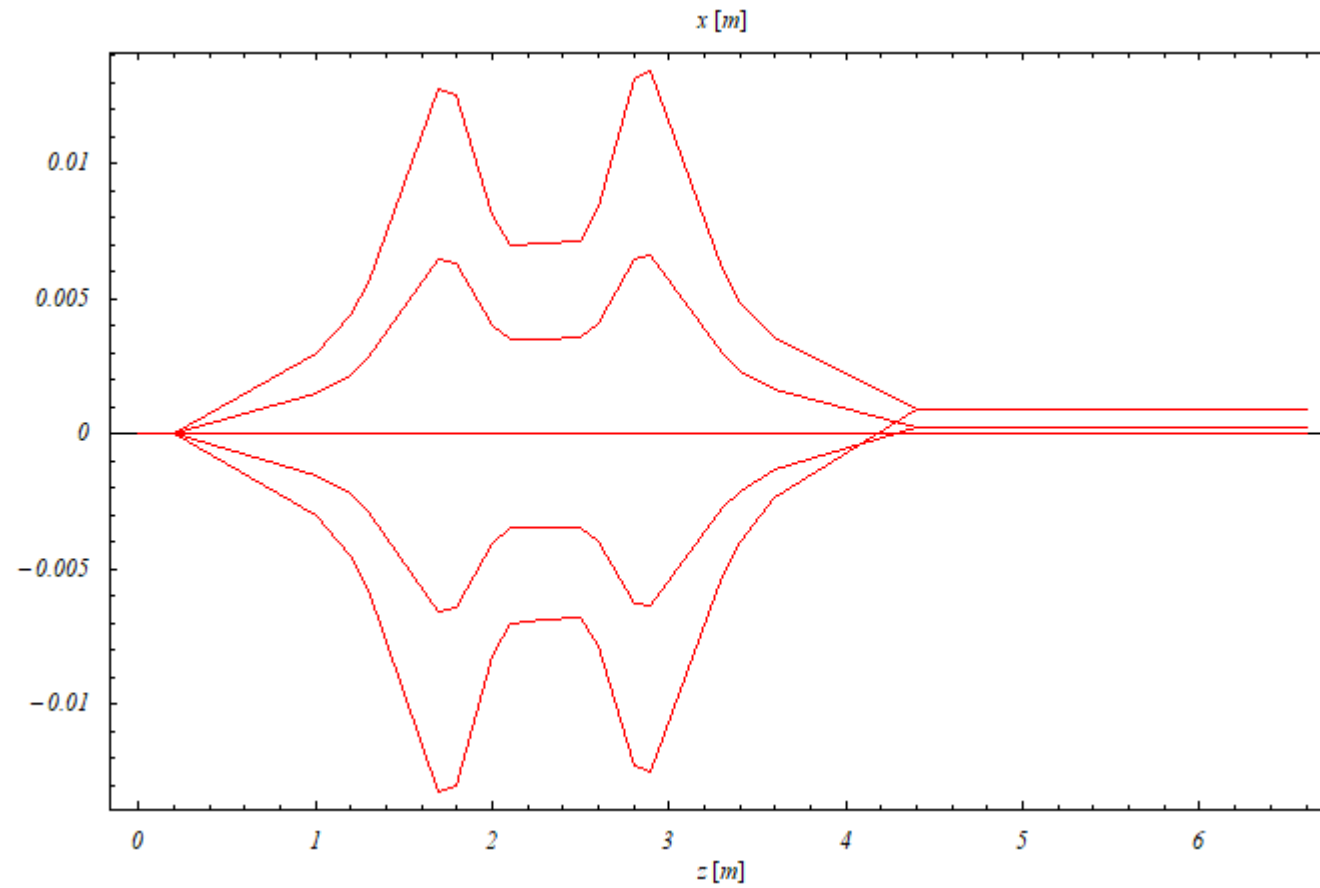
Assumptions

- Hard edge approximation
- Large amplitude and large momentum spread effects taken into account
- Initial emittance 4.06×10^{-6} m
- Tracking with the arc + 2m drift downstream

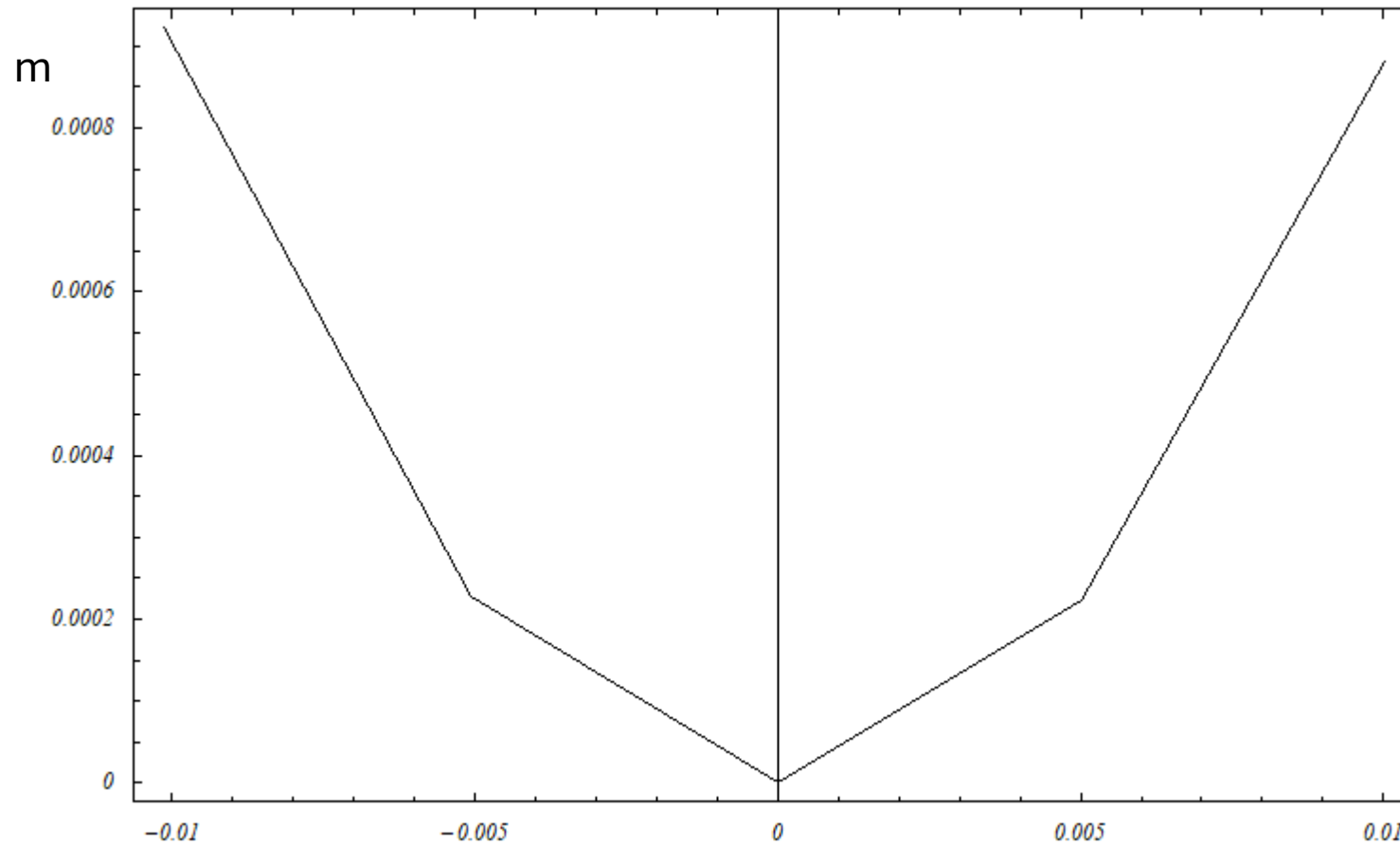
Tracking with small momentum spread



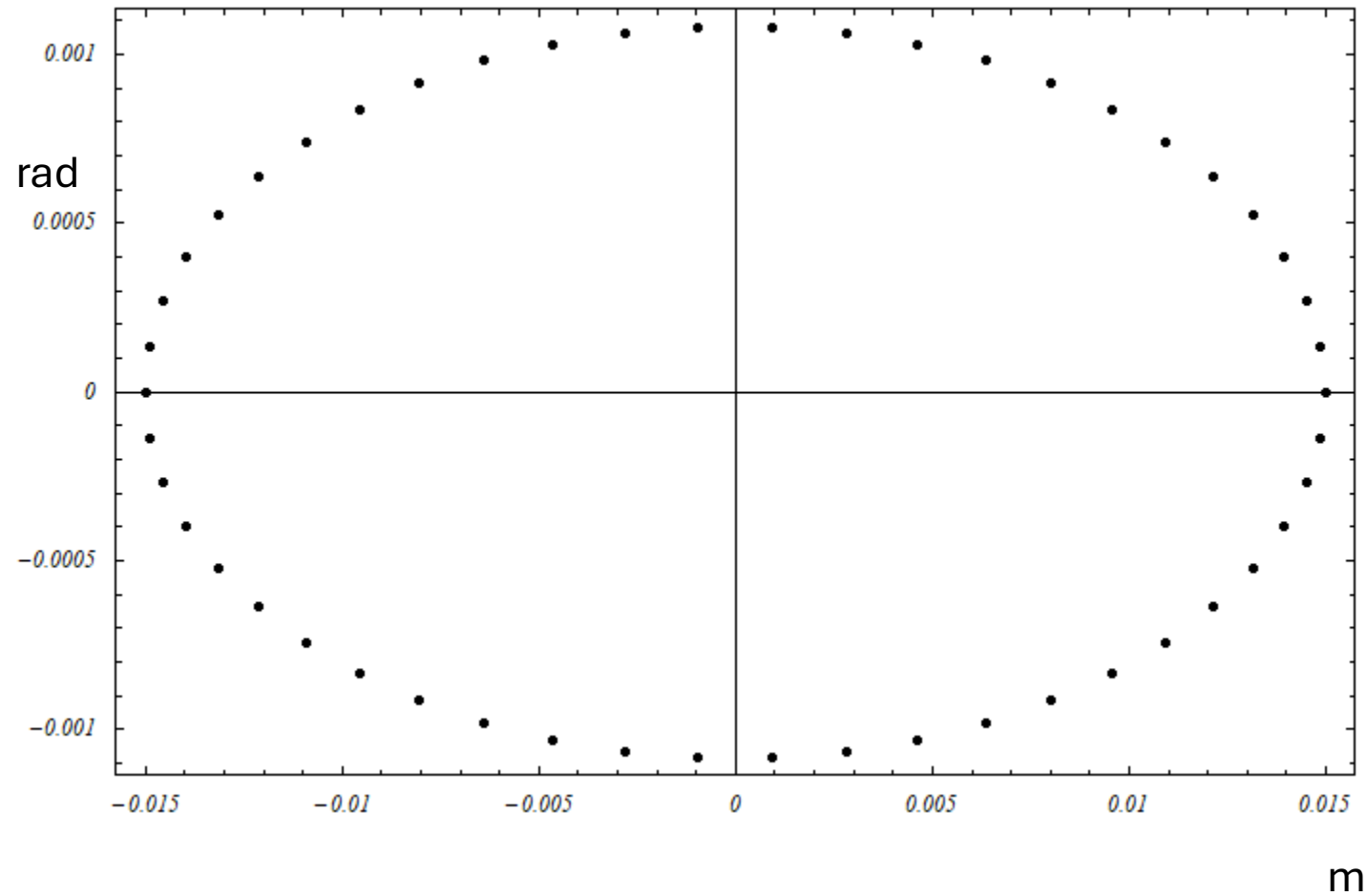
Tracking with large momentum spread



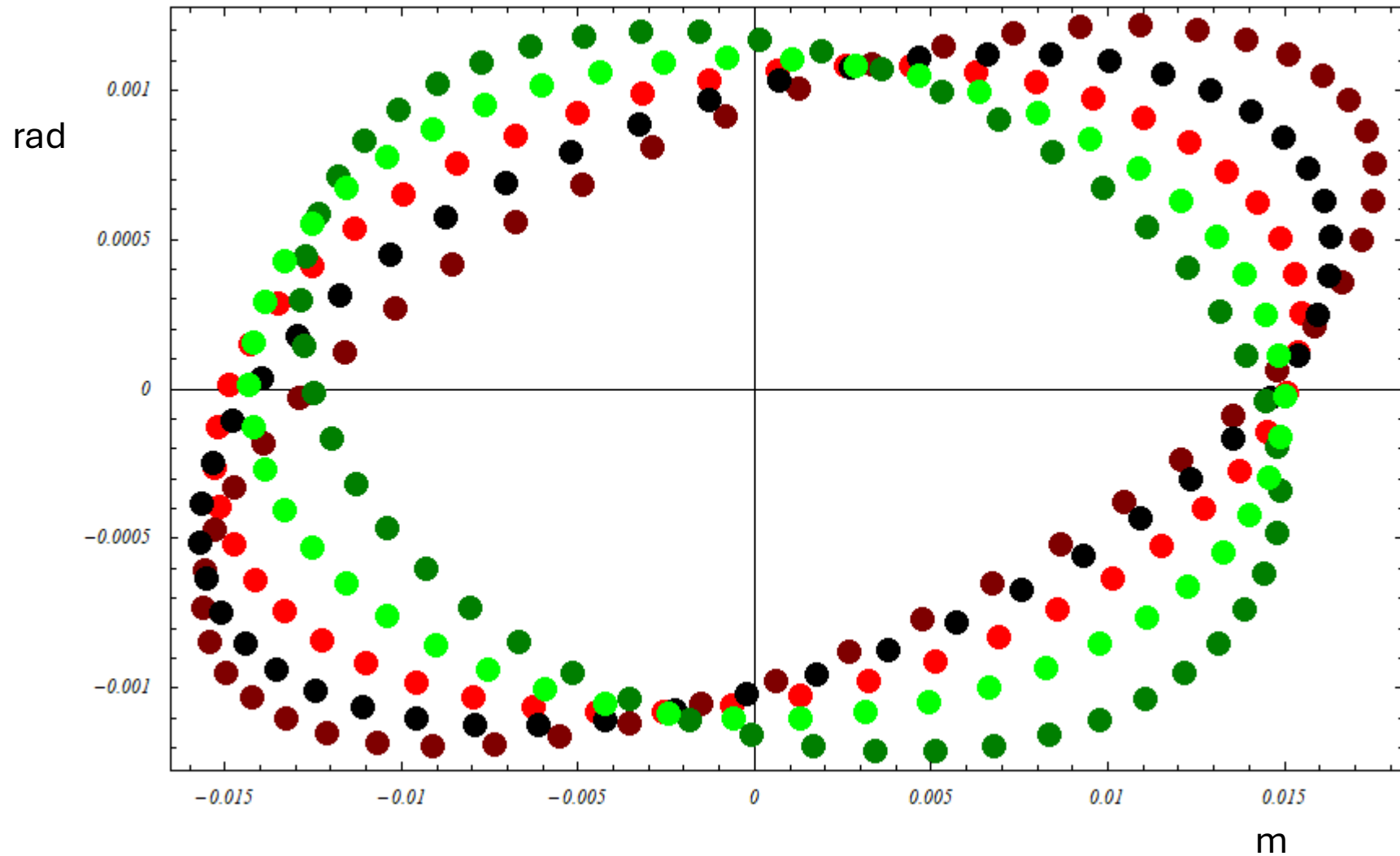
Orbits as a function of relative momentum spread, $D \sim 1 \cdot 10^{-3}$, $D1 \sim 8.9$ m (arc only)



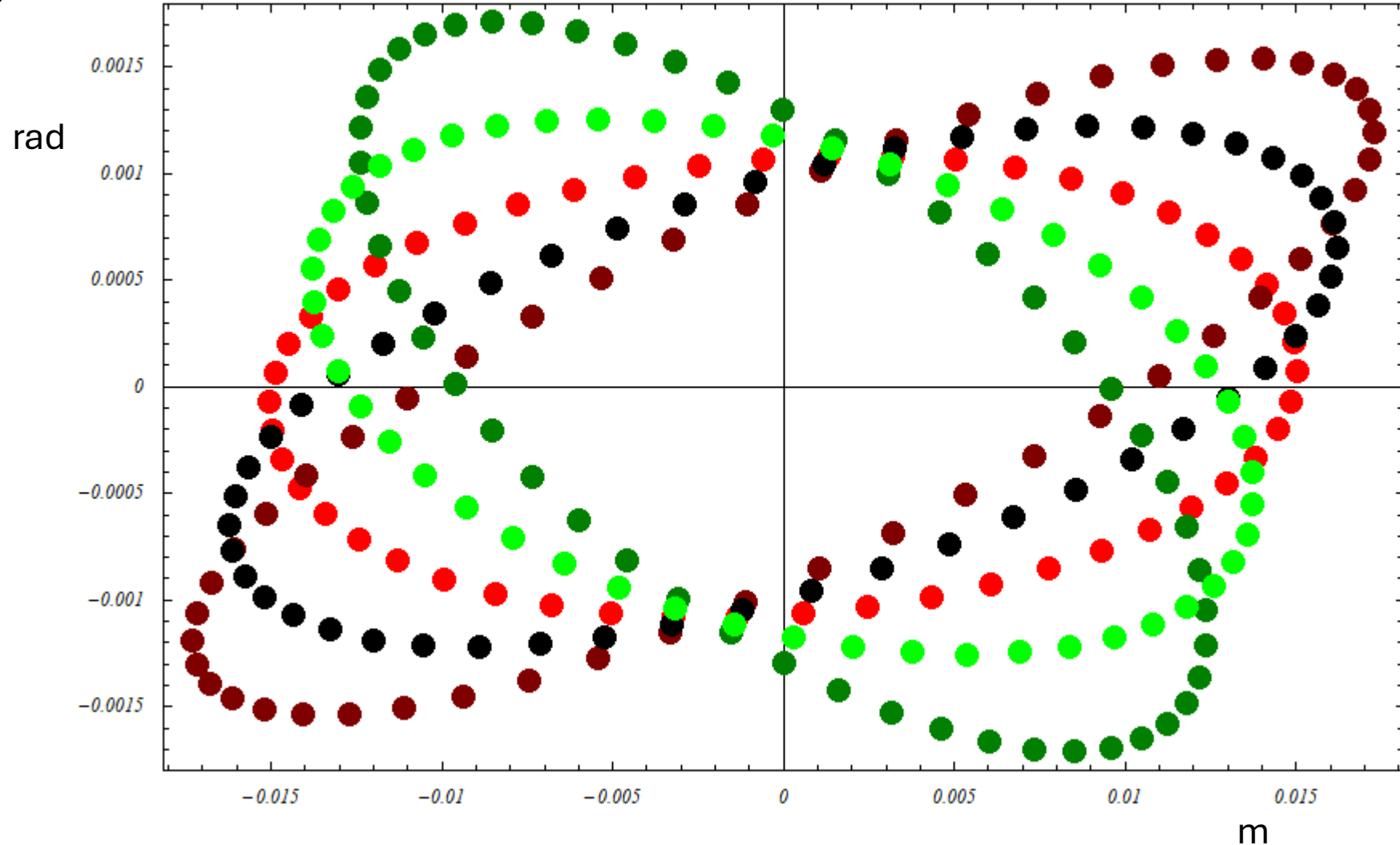
Initial phase space



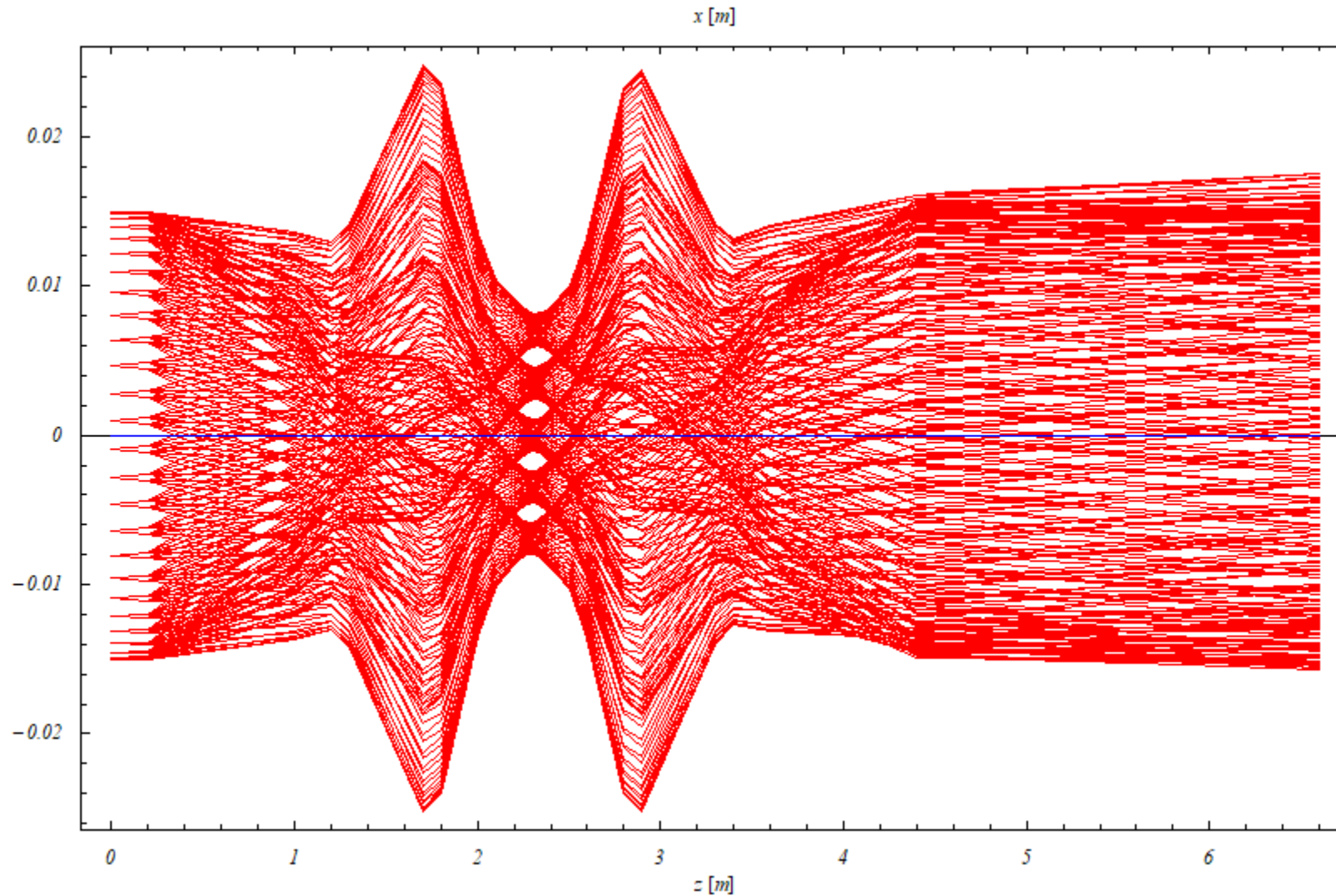
Final bending phase spaces for different energies



Final non-bending phase spaces for different energies



Aperture requirements, bending plane



Aperture requirements, non-bending plane

