

Mismatch is inherent

- One linac, two beams: power doubled, ions neutralize.
- RFQ: same force. MEBT: opposite forces.
- Identical at the RFQ exit but not round: one MEBT setting cannot match both.

Single-particle analytic solution (no space charge)

- Smallest ellipse enclosing both beams, found analytically.
- Mismatch split equally; neither beam is favored.
- Minimize the maximum mismatch.

Space-charge correction

- With space charge, the partition needs a correction.
- One continuous parameter shifts the reference ellipse.
- It acts as a compensation parameter for the space-charge force.

