

- The cooling process passes the beam through a wedge of solid material
- Absorbs energy from the muons through ionization energy loss.
- Because of the linear variation Thickness, the wedge introduces Dispersion

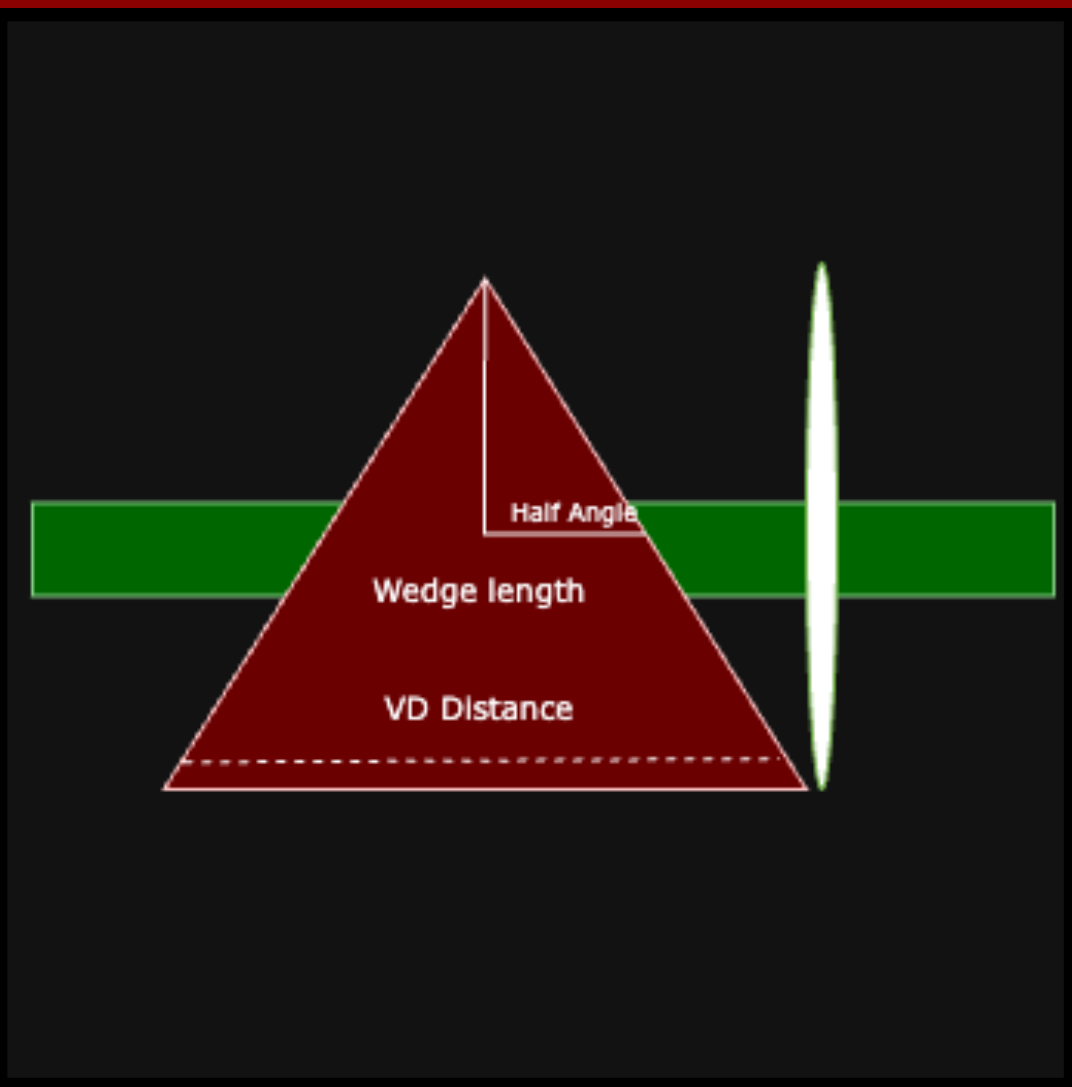


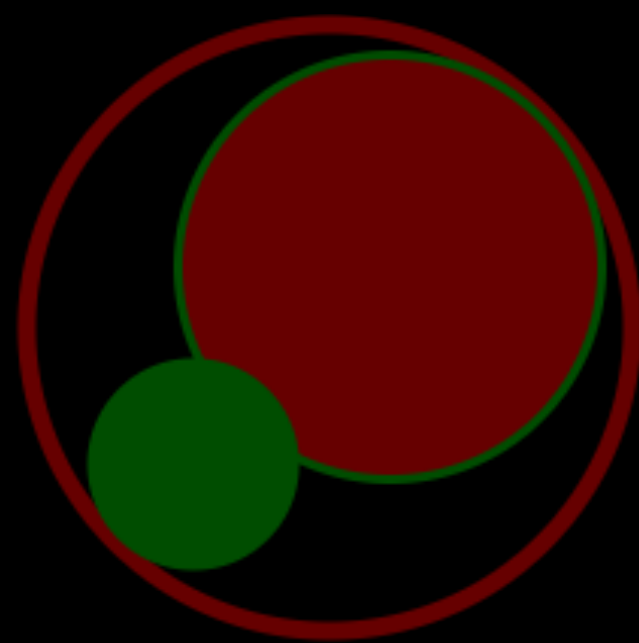
Figure 1:  
Diagram  
Of a thick  
wedge

Terms:

Ionization Cooling - electron in the object feels a force caused by the electric field of charged particle which ejects the electron overcoming the binding force

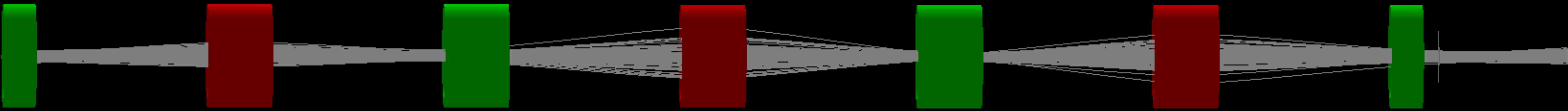
Dispersion - quantifies how off momentum particles deviate from the ideal orbit

# 4D Cooling Using Thick Wedges

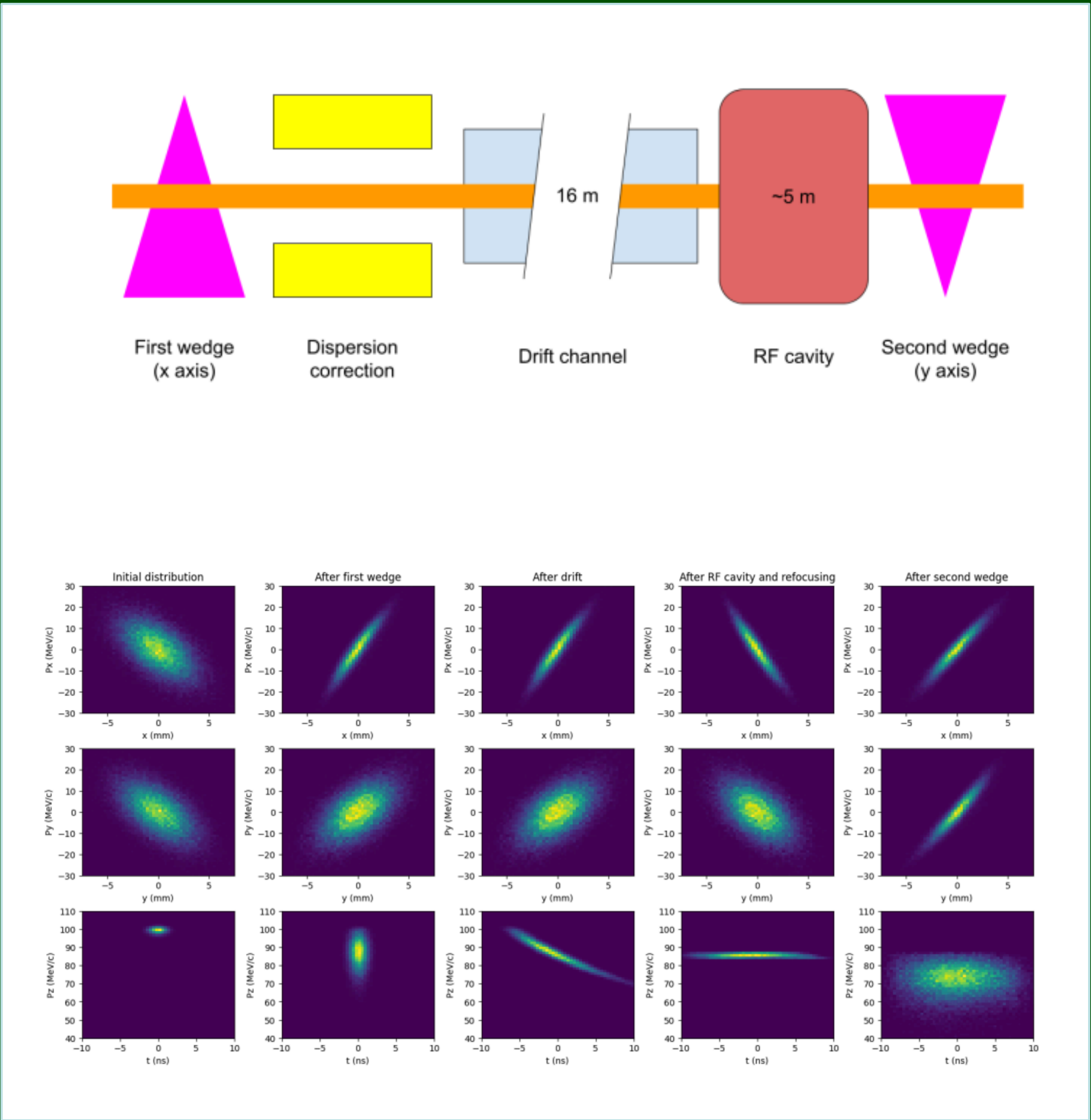


## FOR A FUTURE MUON COLLIDER

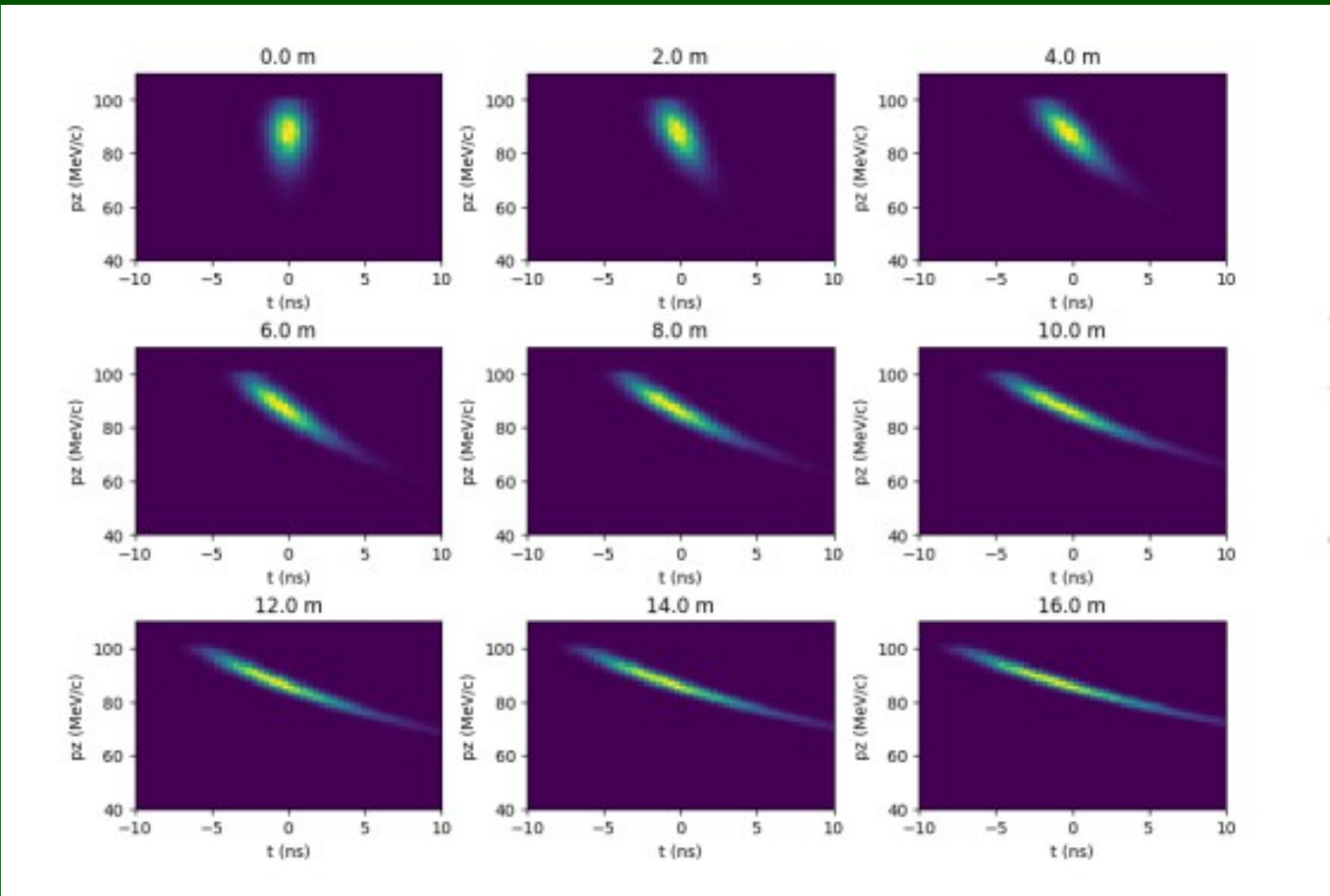
RYAN MICHAUD, DANIEL FU, DIKTYSTRATAKIS, ELIANA GIANFELICE WENDT



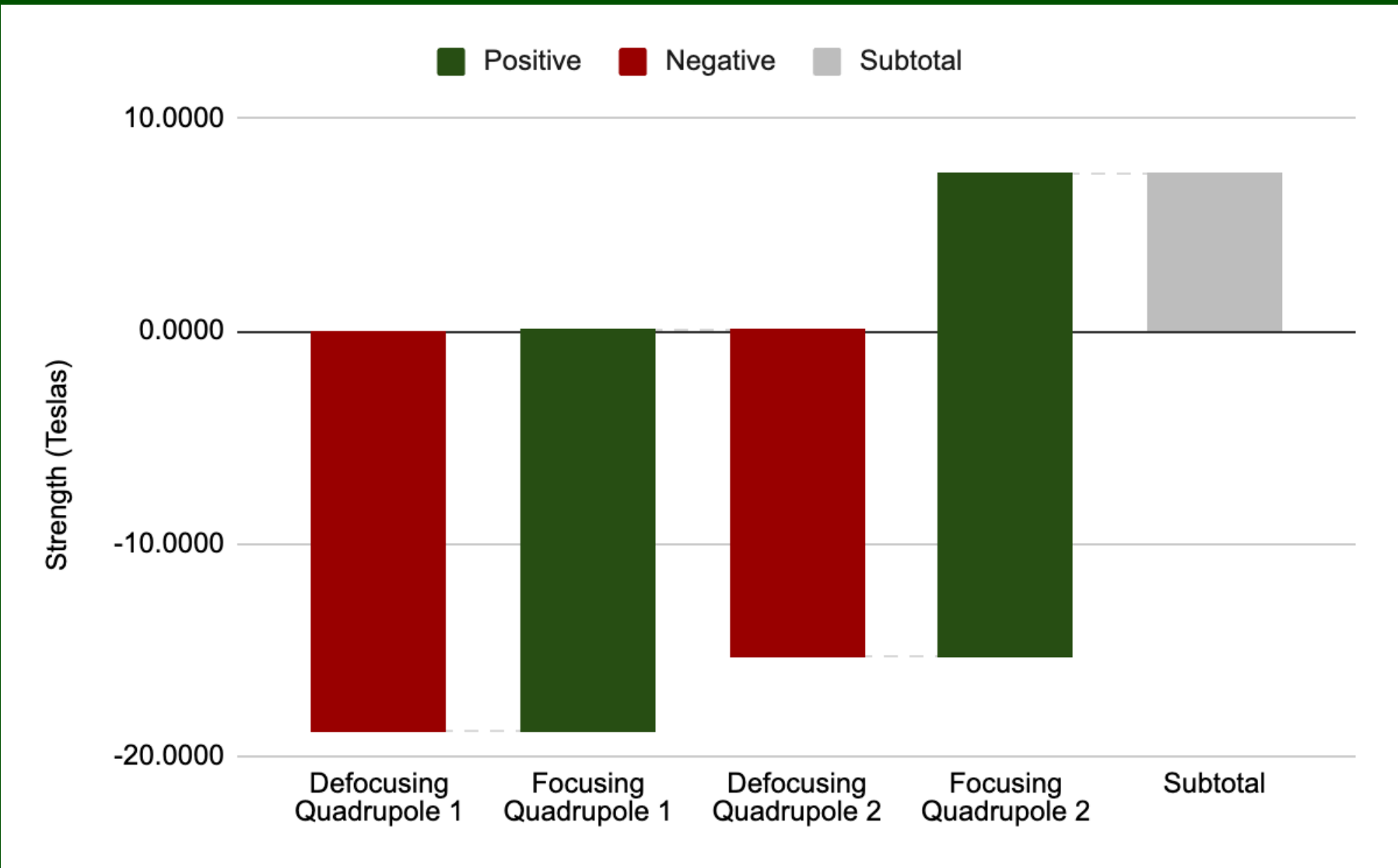
Cooling Channel:



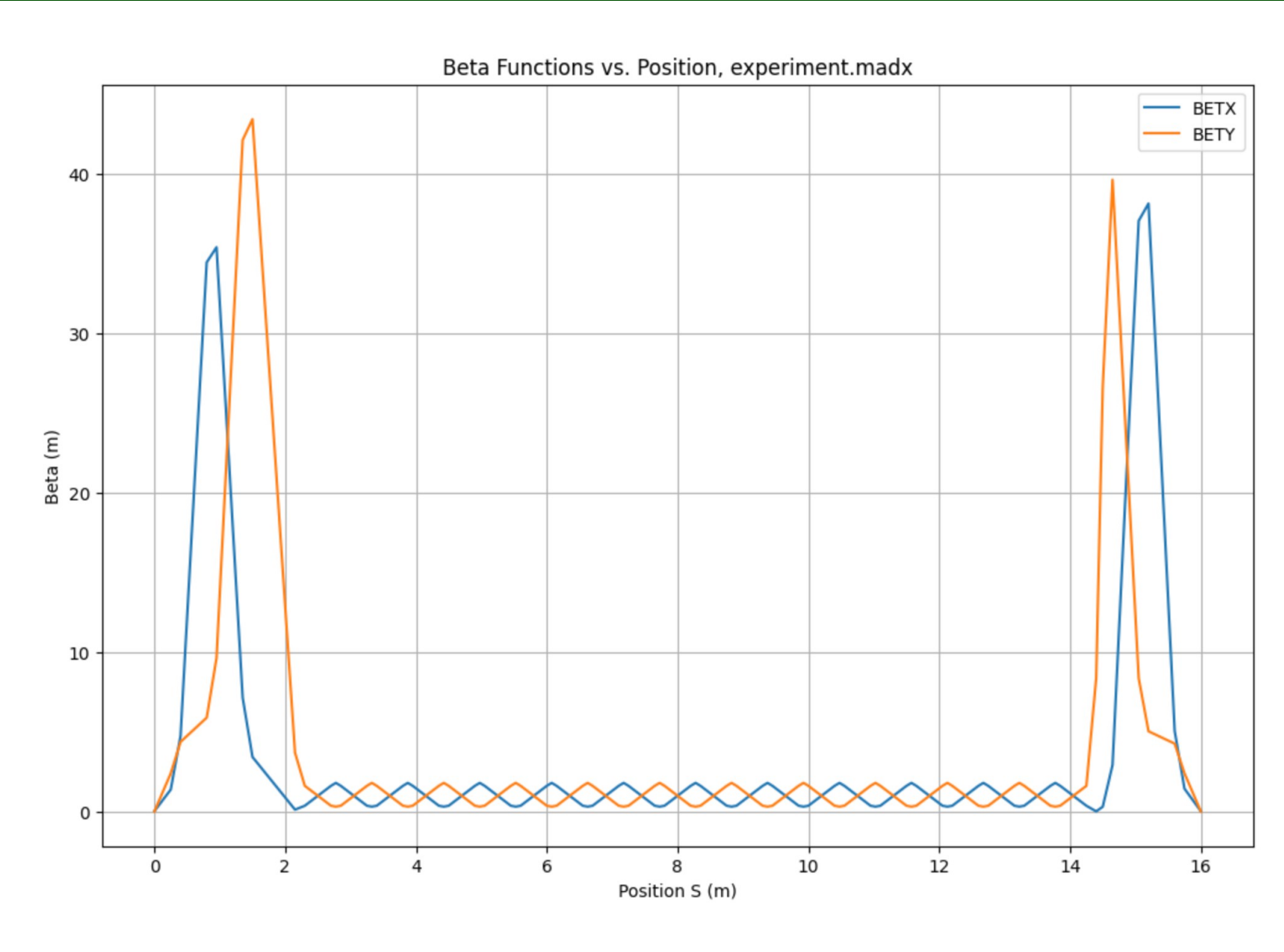
Optimization :



Up end Magnet Strengths:



Beta Functions:



Down End Magnet Strengths:

