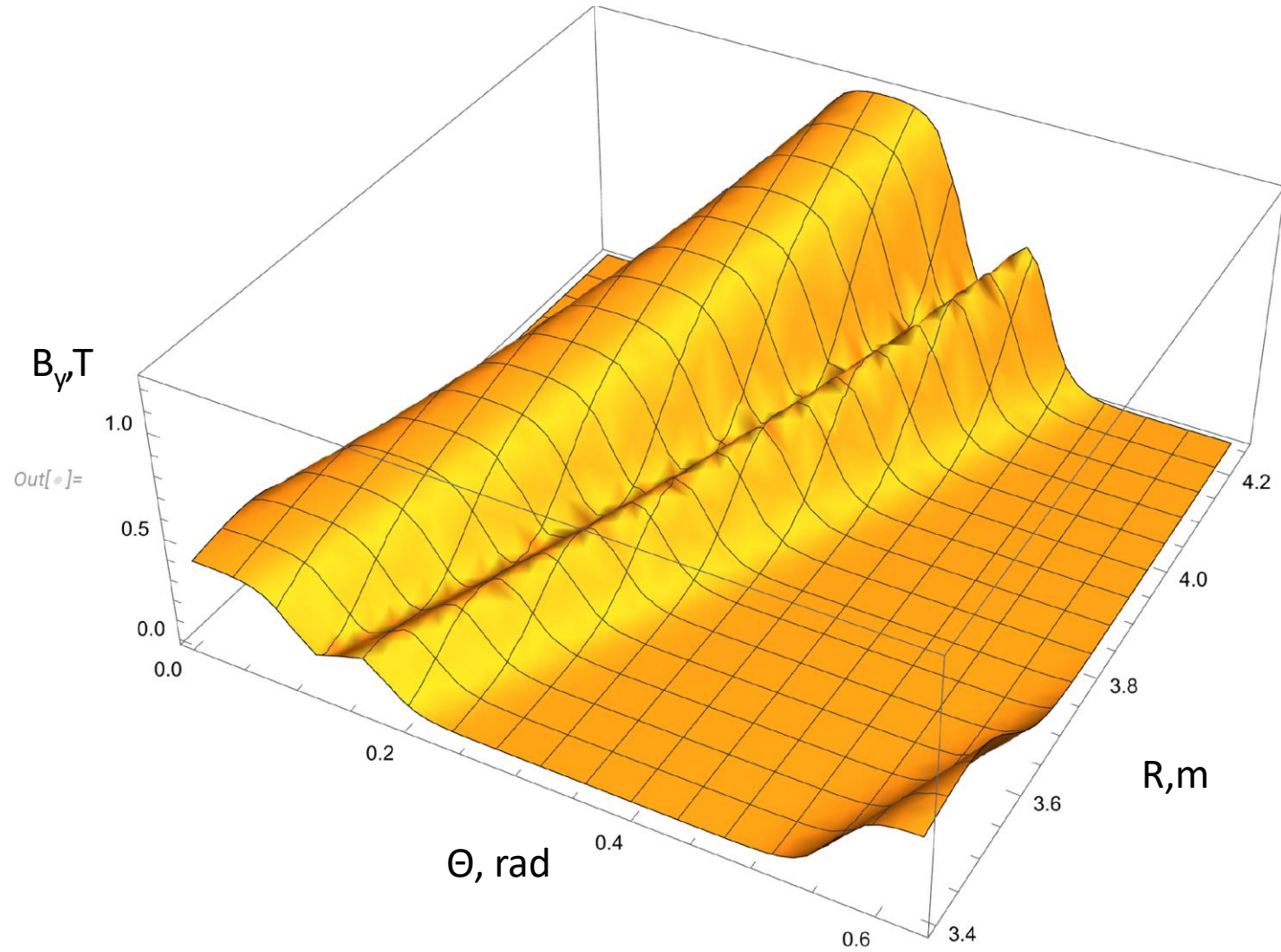


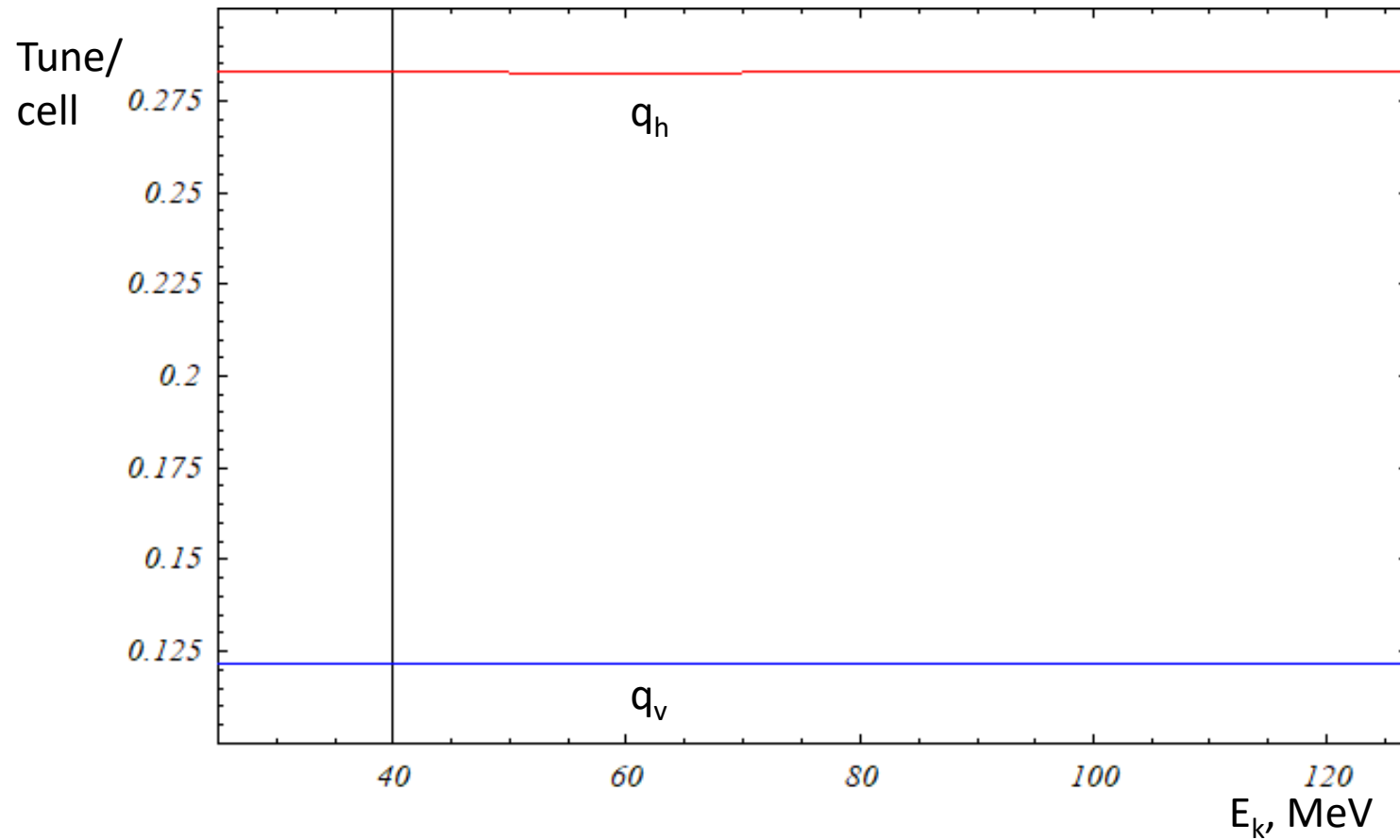
# WP6 Meeting, 01/08/2023

J.Pasternak, IC/JAI/RAL-STFC

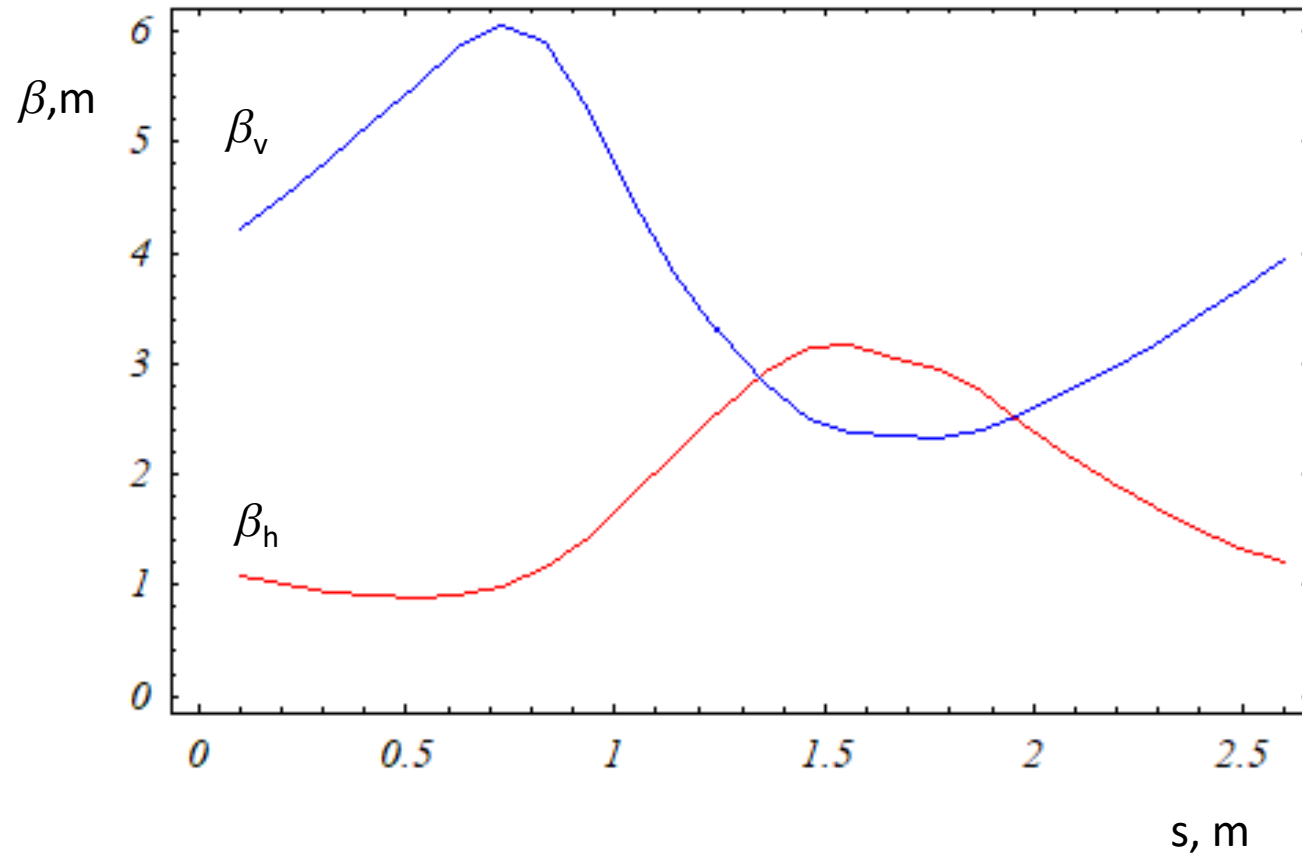
# New LhARA lattice with doublet focusing Ff, field on median plane (3D)



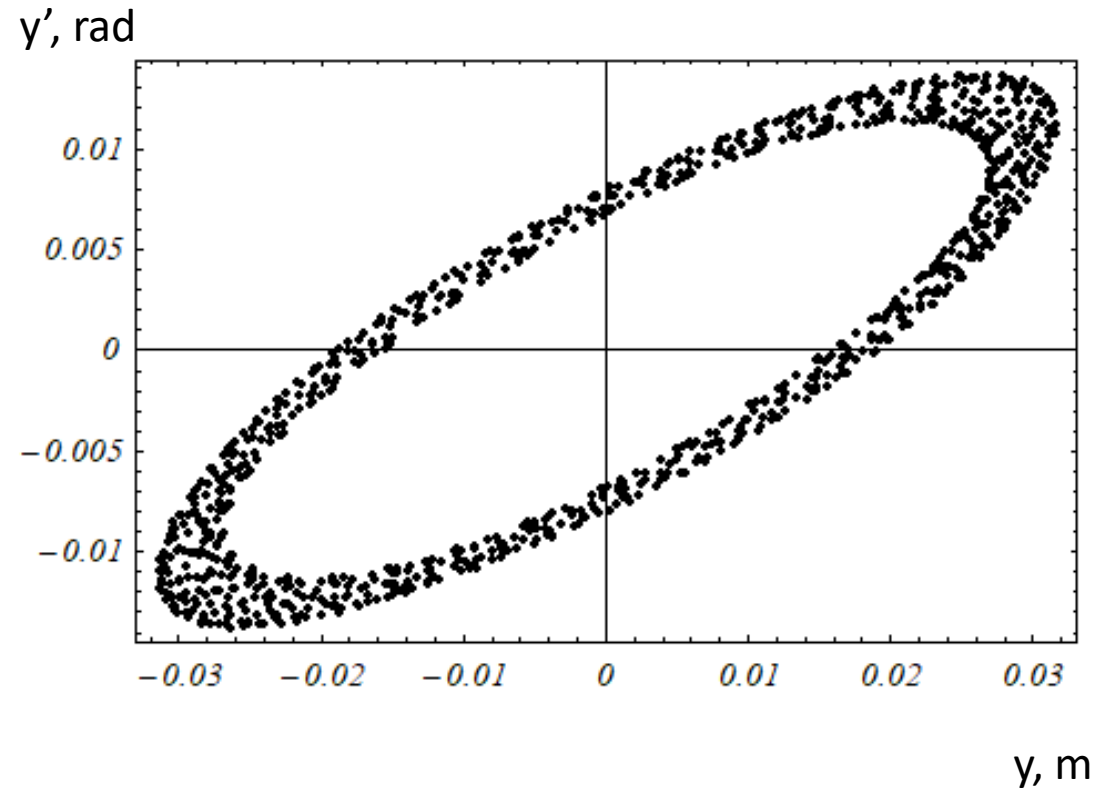
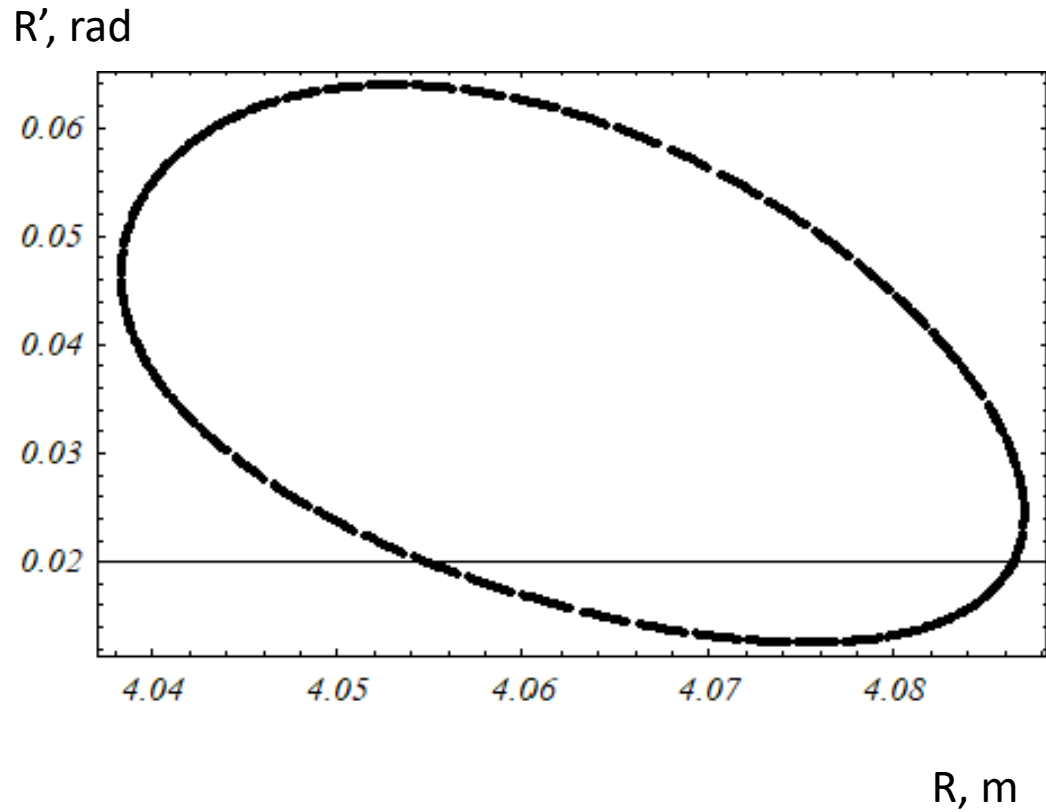
# New LhARA lattice with doublet focusing Ff, scaling



# New LhARA lattice with doublet focusing Ff, Twiss functions



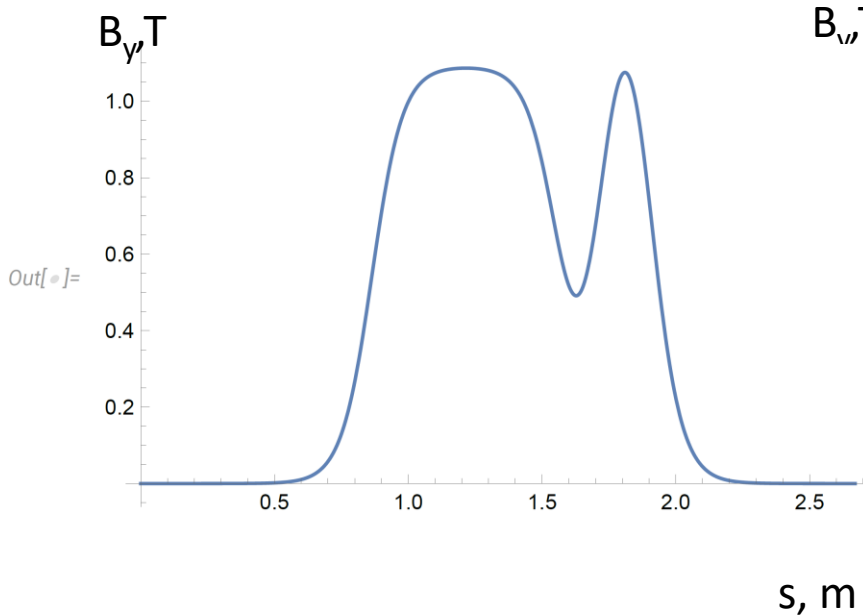
# New LhARA lattice with doublet focusing Ff, DAs



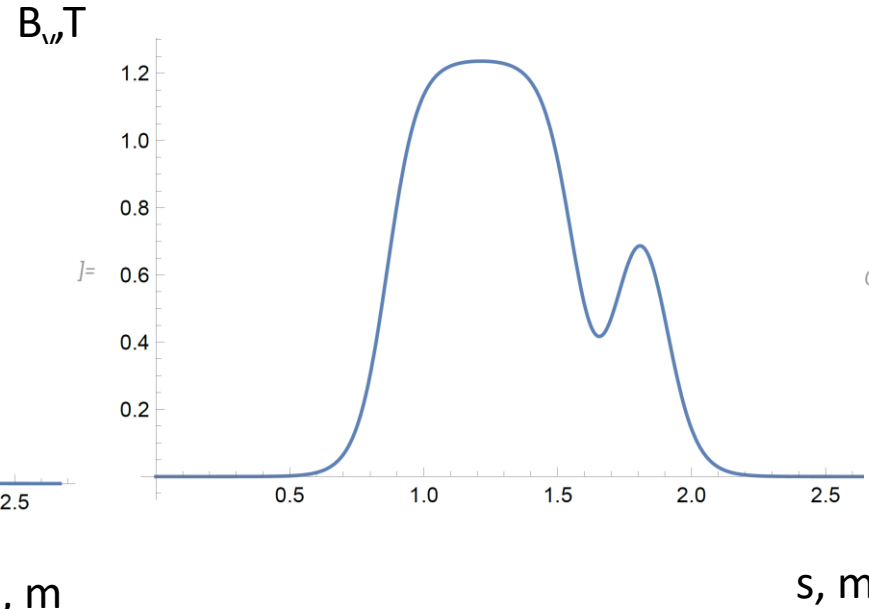
# New LhARA lattice with doublet focusing Ff, parameters

- N 10
- k 5.37
- Spiral angle 50.76°
- $R_{\max}$  ~4.25 m
- $R_{\min}$  ~3.68 m
- (Qx, Qy) (2.83, 1.22)
- $B_{\max}$  1.5 T
- $p_f$  0.386
- Max Proton injection energy 15 MeV
- Max Proton extraction energy 127.4 MeV
- h 1
- RF frequency
  - for proton acceleration (15-127.4MeV) ~2.29 – ~5.32 MHz
- Bunch intensity few $\times 10^8$  protons
- Range of other extraction energies possible
- Other ions also possible

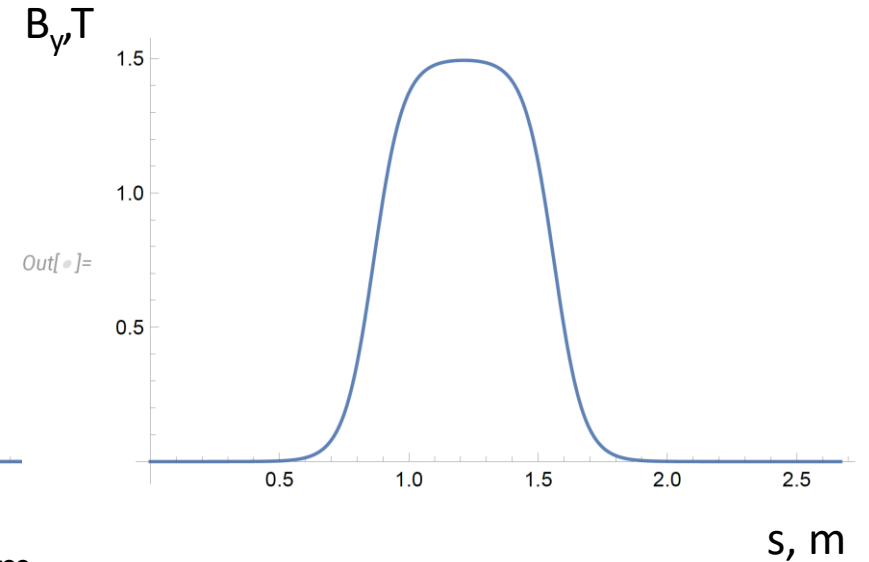
# New LhARA lattice with doublet focusing Ff, flexibility at constant k



$(q_h, q_v) = (0.278, 0.054)$



$(q_h, q_v) = (0.283, 0.122)$   
nominal working point



$(q_h, q_v) = (0.292, 0.206)$

# Summary

- Lattice is very flexible, perhaps too much
  - We could reduce flexibility and get more compact lattice with lower spiral angle