

# Magnet Design carrying on tutorial part 2

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IAS, July 2023

# Task 2: Continue with your dipole in detail

- Input:
  - Take your design so far and add the knowledge from this morning's lecture on magnet design to add more detail.
- Design output
  - What current is required for your dipole magnet?
  - Consider the impact your current coils and fringe fields have on the effective length of your magnet and the physical length of your magnet, what impact does that have on your design?

# Task 3: Design the quadrupoles for your FODO

- Input:
  - Using your FODO design, consider the quadrupole design given the knowledge from this morning's lecture.
- Design output
  - What is the pole tip radius of your quadrupole?
  - What current is required for your quadrupole?
  - Consider the fringe fields and the current coils in your magnet, how do they impact your design?

# Additional things to consider

- Do you need to reconsider your design given the more detailed designs with current coils and fringe fields?
- Can you adjust the length and strength of your magnets to optimise your design?
- What are the limits to the current? The windings? The current density?