



# The 1<sup>st</sup> IOTA Design Meeting

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# Communication

## □ Email list

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## □ Redmine

□ <https://cdcvns.fnal.gov/redmine/projects/iota>

## □ Indico

□ <https://indico.fnal.gov/categoryDisplay.py?categId=373>

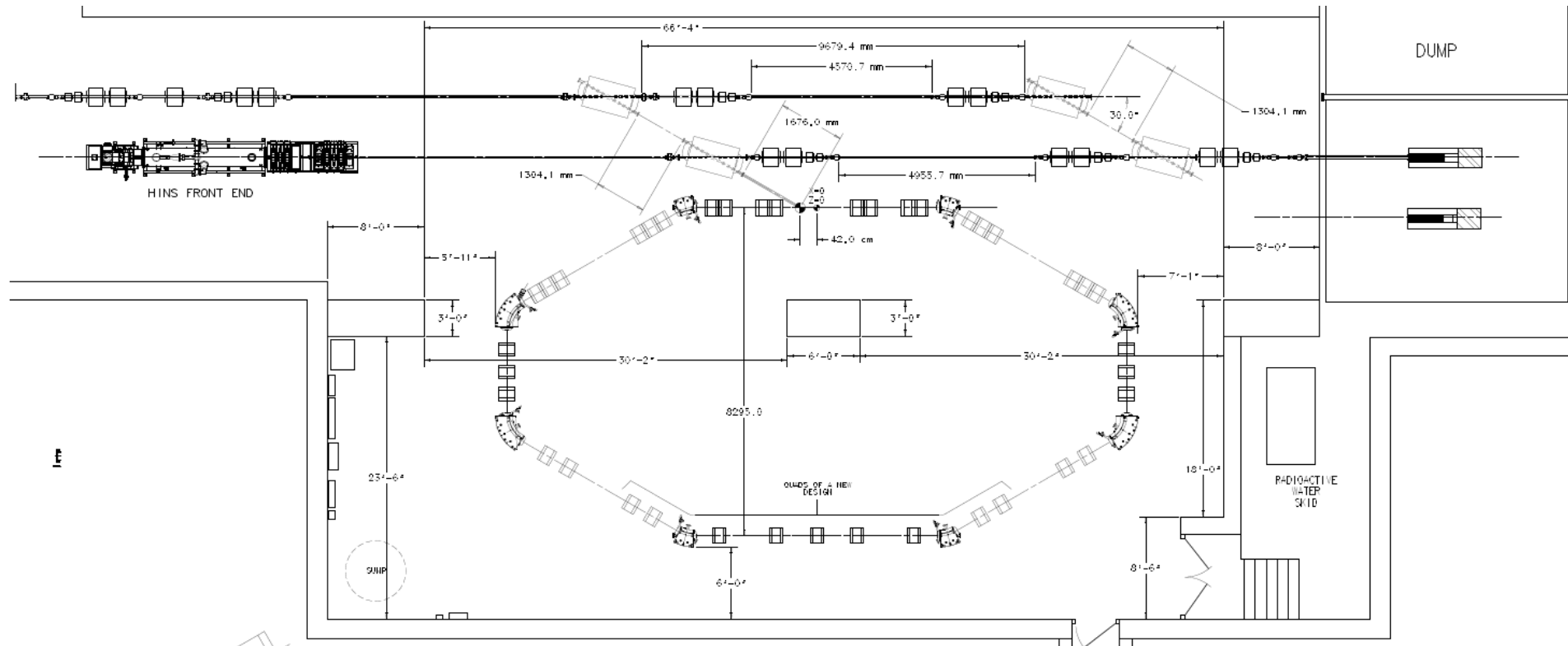


# Design Goals

- Machine lattice must provide enough flexibility to accommodate
  - An Electron Lens (2 m)
  - 1 or 2 for nonlinear magnets (~2 m each), and corresponding number of elements of periodicity
  - Optical stochastic cooling (5 m for undulators and chicane)
- Since we intend to sample the nonlinearities with a pencil beam
  - machine aperture must be large enough - beam pipe  $D=2''$
  - must have a h-v kicker
- The machine must fit in the hall area
- Be inexpensive and reuse components from other machines



# Layout



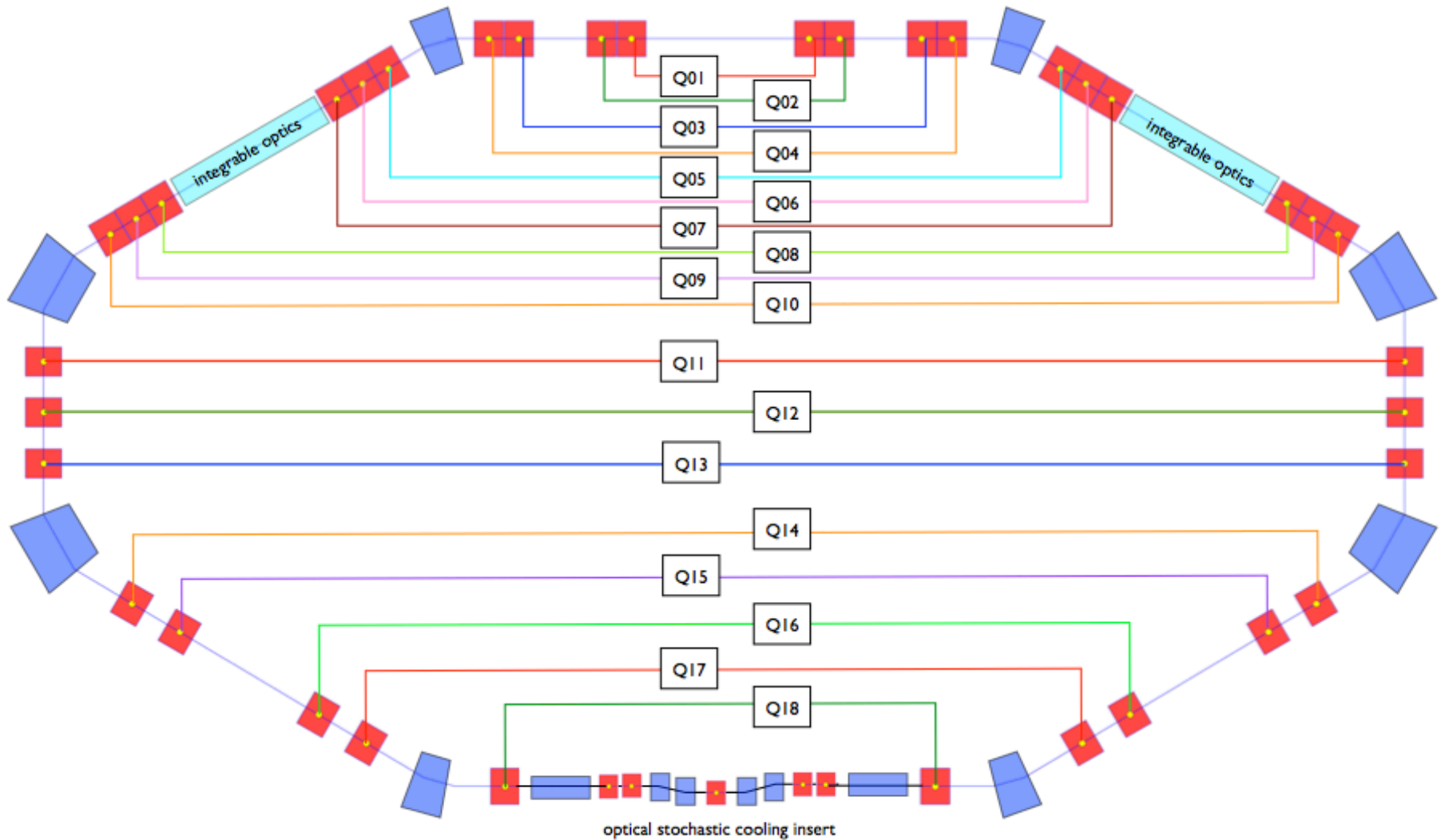


# Lattice

- ▣ Gene Kafka
- ▣ Significant flexibility
  - ▣ 1-magnet Integrable Optics (IO)
  - ▣ 2-magnet Integrable Optics
  - ▣ Electron Lens (EL)
  - ▣ Optical Stochastic Cooling (OSC)
- ▣ 39 quadrupoles in baseline lattice + 3 in OSC
- ▣ 20 circuits in baseline



# Magnet Layout





# Systems

- ▣ Injection (Sergey Antipov)
  - ▣ 50 Ohm H and V Kicker
    - ▣ re-use Tevatron PS
  - ▣ DC septum magnet
- ▣ Proton Option (Eric Prebys)
- ▣ Vacuum (Lucy Nobrega)
- ▣ Instrumentation (Nathan Eddy)
- ▣ Power Supplies (Kermit Carlson)
- ▣ Electron Lens (Giulio Stancari)
- ▣ RF - ?