Control System Issues and Planning for eRHIC

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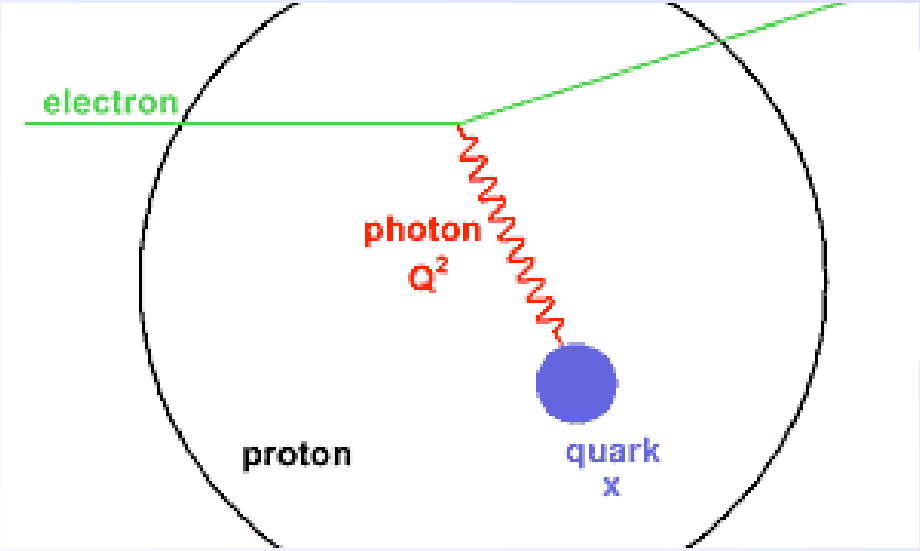
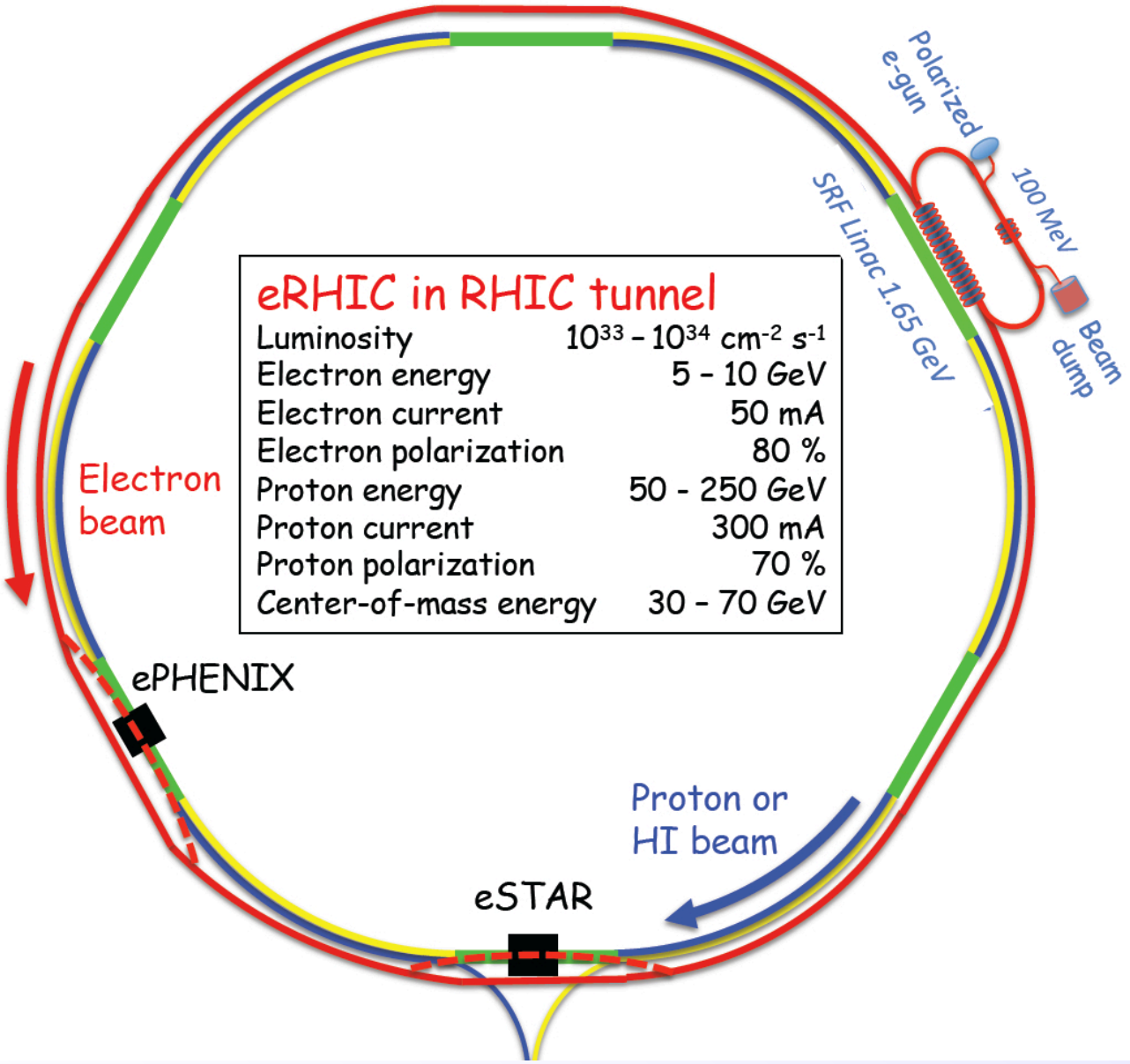
eRHIC: An Ultra-High-Resolution Electron Femtoscope



Richard Feynman:
"Scattering protons on protons is like colliding Swiss watches to find out how they are built"

- Q^2 = invariant mass of the photon
- x = fraction of Proton's longitudinal momentum carried by the struck quark
- Proton mass = 938 MeV/c^2
- Each up/down quarks mass ~ 3 to 5 MeV/c^2
- 99% of all visible matter is generated by gluon self-interactions
- *quarks only make up 1% of visible mass in the universe.*
- Where is missing proton spin?
- Do gluon densities saturate? (Where is onset of gluon saturation?)



eRHIC in RHIC tunnel

Luminosity	$10^{33} - 10^{34}$ cm^{-2} s^{-1}
Electron energy	5 – 10 GeV
Electron current	50 mA
Electron polarization	80 %
Proton energy	50 - 250 GeV
Proton current	300 mA
Proton polarization	70 %
Center-of-mass energy	30 – 70 GeV

Come talk to us!

- Let's talk about eRHIC and why?
- Learn about RHIC Controls
- Let's discuss the Evolution of RHIC Controls since 1st commissioned and innovations that have led to amazing performance improvements in the past few years.
- What can our industrial partners do to help?
- Would you like to collaborate?

Thank you !!