Discussion on the new lattice for the Compton polarimeter at IR6

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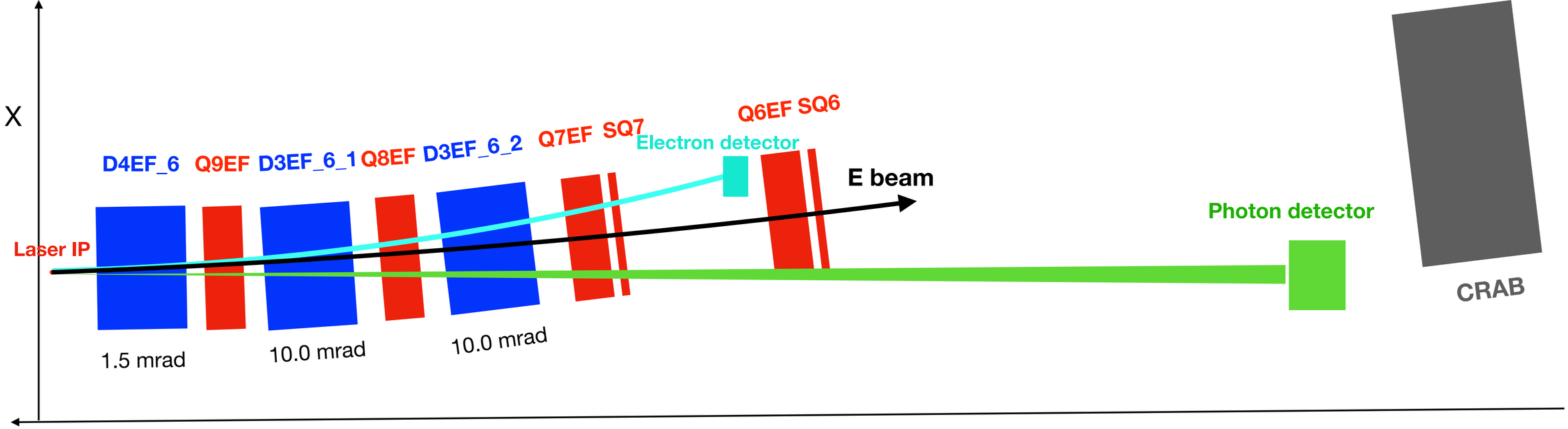

- **The synchrotron radiation appears well manageable for the photon detector in the current lattice. We would only need a 1mm tungsten shield to block it, slightly better than our initial 1.3mm estimation.**

Key questions:

- In the current lattice design, the photon path goes through several elements: D4EF_6, Q9EF, D3EF_6_1, Q8EF, D3EF_2, Q7EF, SQ7, Q6EF, and SQ6. We need to ensure a sufficiently large inner radius for D4EF_6, Q9EF, D3EF_6_1, and Q8EF. And quadrupoles have clear path (photon beamline designed for SR) for photons to go through as we have confirmed this with magnet experts. However there's still uncertainty regarding D3EF_2, SQ6, and SQ7, it's essential to verify that the dipoles, SQ6, and SQ7 don't pose an issue. Who would be the best person to consult on this?

- Daniel Marx who designed the lattice is considering using one single bending dipole (13 mrad) to reduce the interfering elements between the laser IP and the photon detector, while this would make the separation of the recoil electron and beam harder.

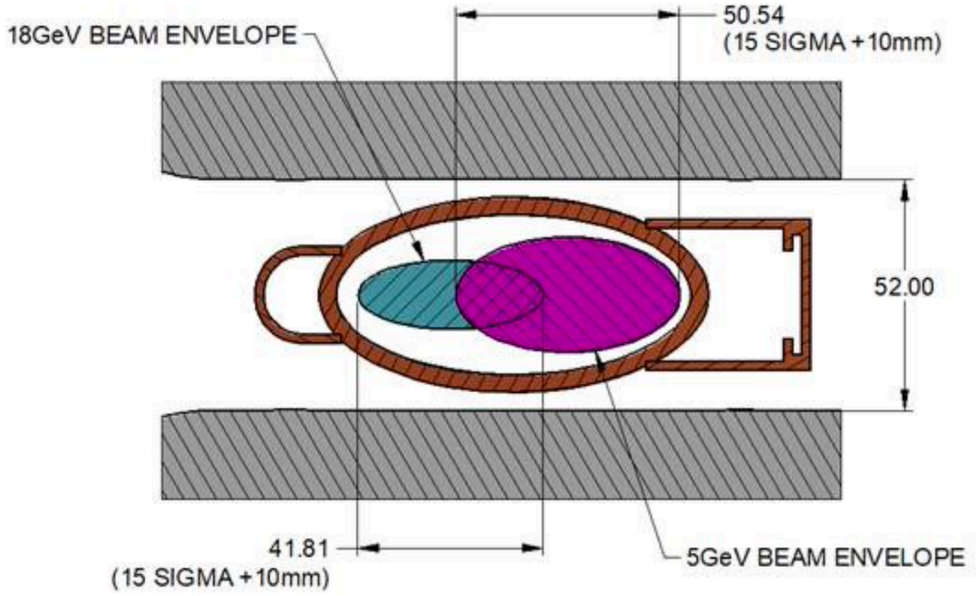

Figure 1.11: Cross section of storage ring vacuum chamber in dipole magnets.

Key questions:

- We have been considering a Roman-pot style for the electron detector, which means we'd place the detector inside the vacuum chamber, very close to the beam (15 * sigmaX). However, Elke has expressed concerns about the beam impedance, indicating that a Roman-pot style for the electron beam would not be feasible.
- Consequently, we need to position the detector close to the beam pipe and ascertain the exact dimensions of the beam pipe specifically at the location where the electron detector will be placed. Elke provided a general size of the beam pipe as roughly 7cm X 5cm though I misplaced the exact numbers.
- Given that the spread of the recoil electron at 5GeV in the horizontal direction is about 2cm, it appears that measuring the recoil electron for 5GeV might be challenging or not even possible.
- Dave emphasized the importance of measuring the zero-crossing for detector calibration. If we're only able to measure a portion of the recoil electron's asymmetry without the zero-crossing, is it still possible to determine the asymmetry accurately?