

Key aspects of a compact detector

- Lower cost (without compromising any physics capabilities)
 - The performance of many subsystems (DIRC, EMcal, etc) does not depend on the overall system size or location. A compact detector simply has fewer modules, making it more cost-effective.
- Lower risk
 - A smaller new solenoid is not only less expensive but has lower technical and schedule risks.
 - A shorter detector is easier to integrate into the IR, as it leaves more space for accelerator infrastructure near the collision point and reduces challenges related to solenoid compensation.
- Synergies with IR8 (and the physics opportunities enabled by a secondary focus)
 - The lower cost equivalent subsystems makes it affordable to invest in key capabilities.
 - An example is a PbWO_4 EMcal for $\eta < 0$, which makes it possible to reconstruct DVCS kinematics using the photon, while only tagging the proton or ion (fragments) in the Roman pots. in combination with the low- p_T acceptance with a 2nd focus, creating new opportunities for imaging of ions beyond He.
- Complementarity
 - A compact 3 T solenoid can in combination with an all-Si tracker provide excellent tracking resolution, and is technologically complementary to the hybrid tracker in a 1.5 T BaBar solenoid in Detector 1.