

ALPHA-g Magnets



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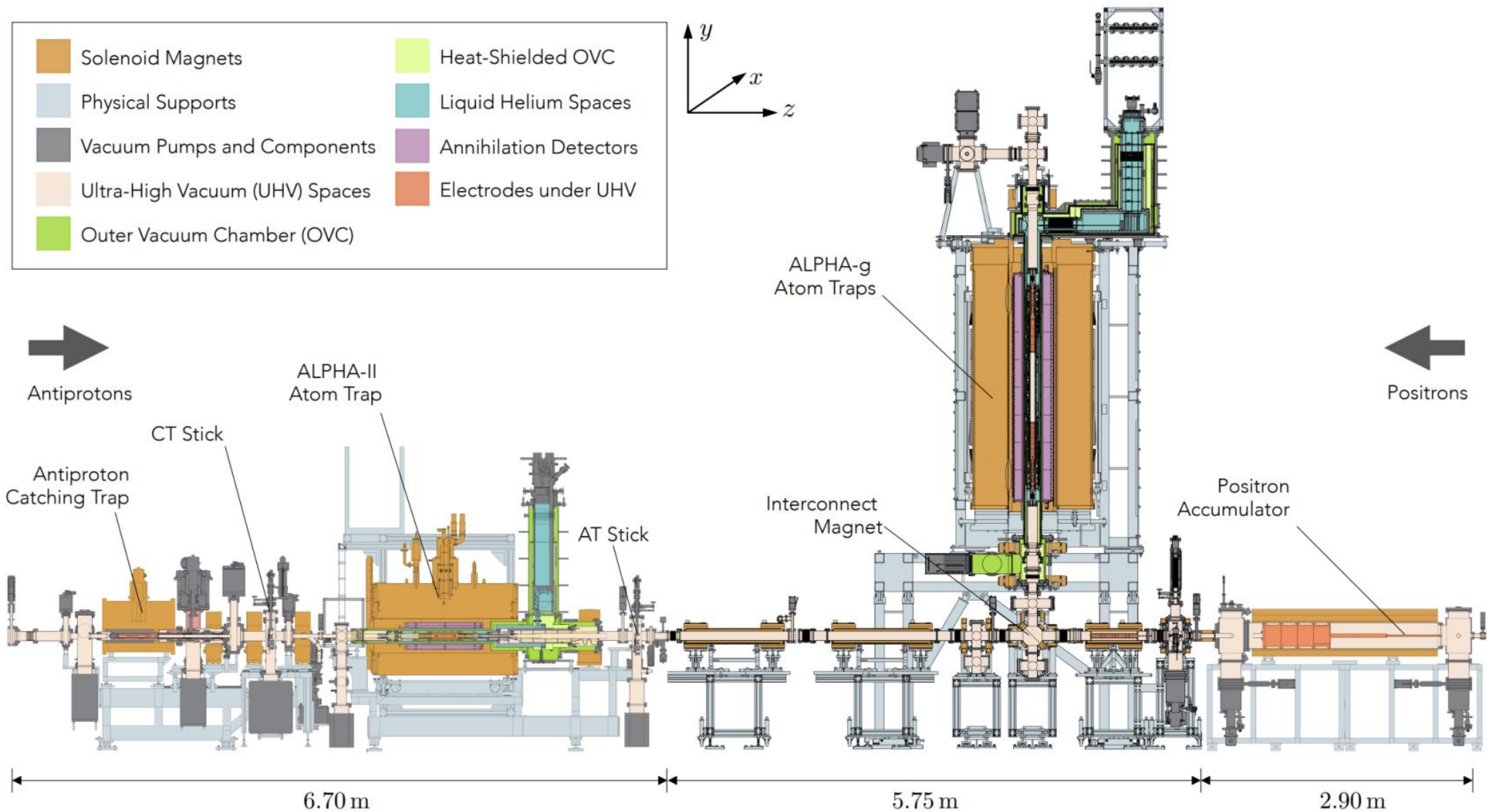


Figure 7. Full layout of the present Antiproton Laser Physics Apparatus (ALPHA) collaboration at CERN: the antiprotons beam comes from the left and is conventionally considered the upstream side while positrons come from the right and identify the downstream one. The key sections are represented by the catching trap, ALPHA-2, ALPHA-g, accumulator, and the positrons source. From ^[5]

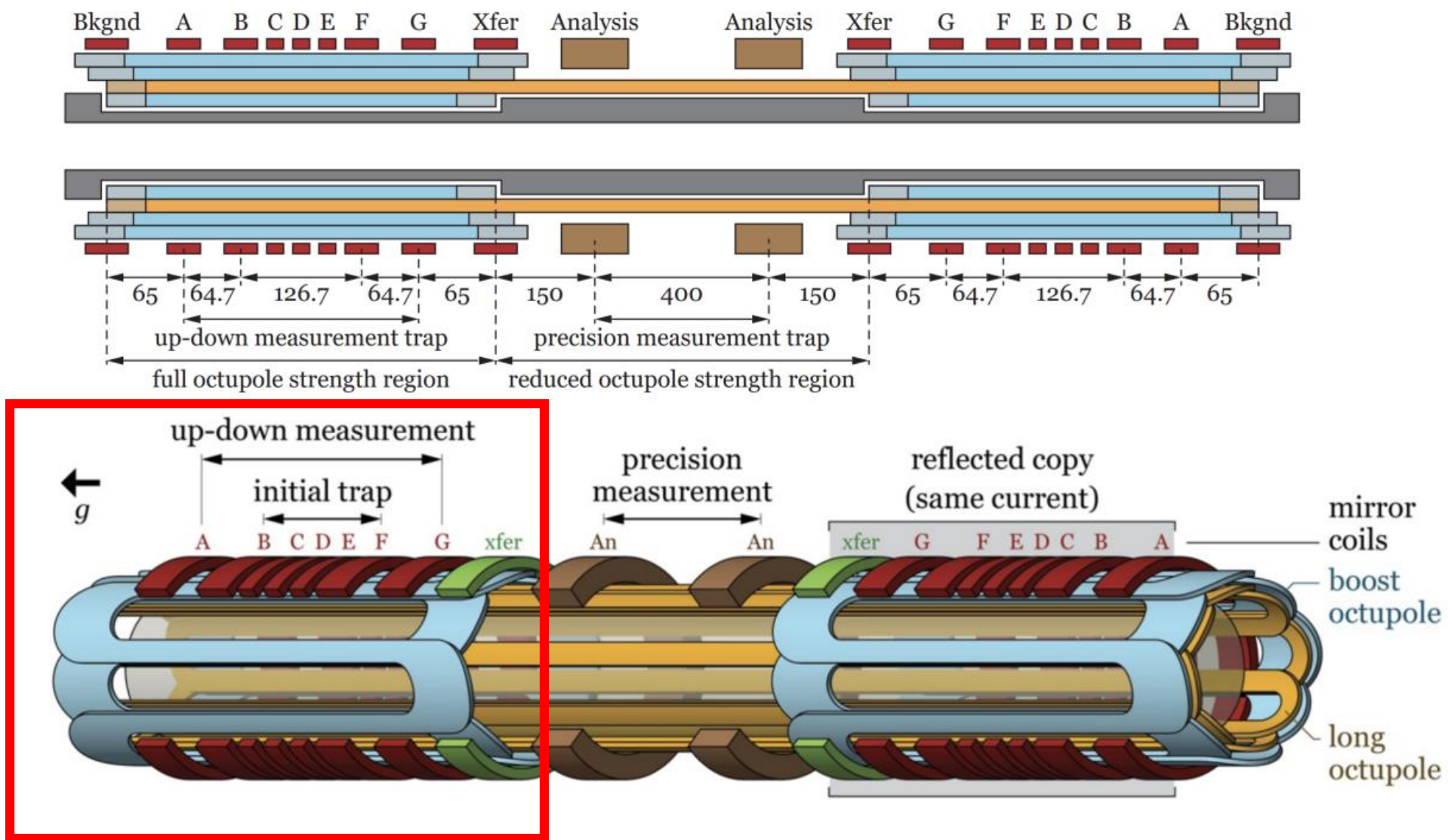


Figure 9. Schematic of the Brookhaven National Laboratory (BNL) magnets with the bottom (left), centre, and top (right) regions with the vertical gravity direction pointing towards the left. Notice the symmetry with respect to the vertical centre in the precision measurement region. The capture solenoids and the outer Babcock solenoid are missing in this schematic.

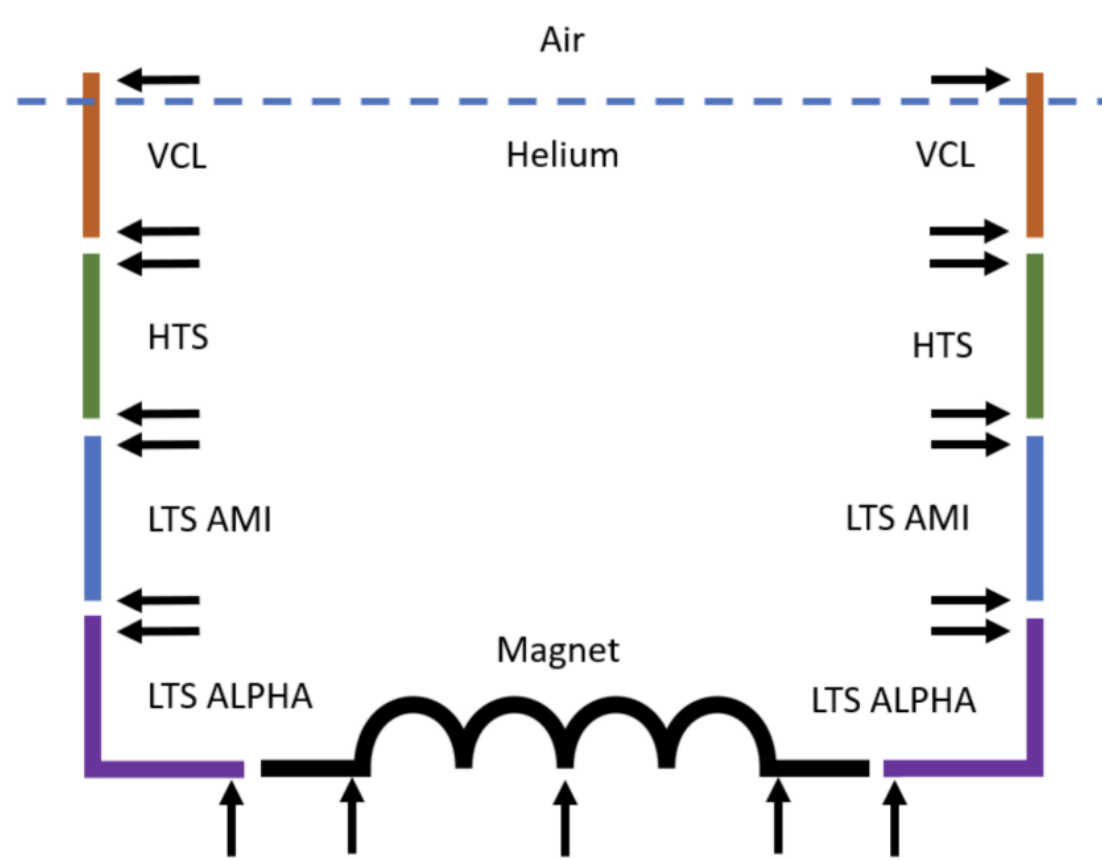


Figure 10. All ALPHA-g magnets are monitored with taps placed along the leads that carry current into the coils and the magnet themselves (marked arrows); a drop can be measured across a pair of taps, in particular the vapour cooled lead (VCL), superconductive lead (SCL), and the low temperature superconductive lead (LTS) are considered to perform quench detection.

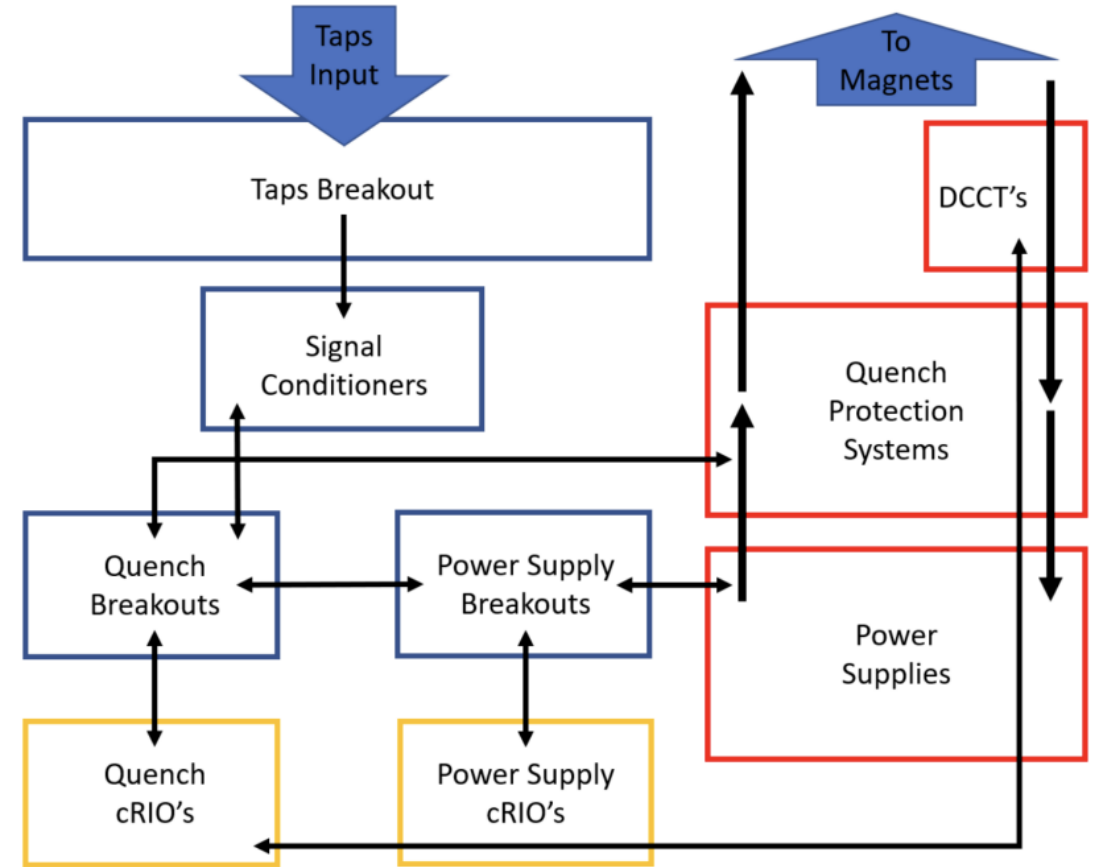


Figure 11. ALPHA-g magnet control system schematic used for all the coils consisting of a power supply for a specific magnet, its quench protection units, a DCCT to measure the real outputted current, the signals received from the taps, a signal conditioner filtering and fanning them to quench and power supply breakouts; all these sections are monitored and controlled with cRIO controllers.