

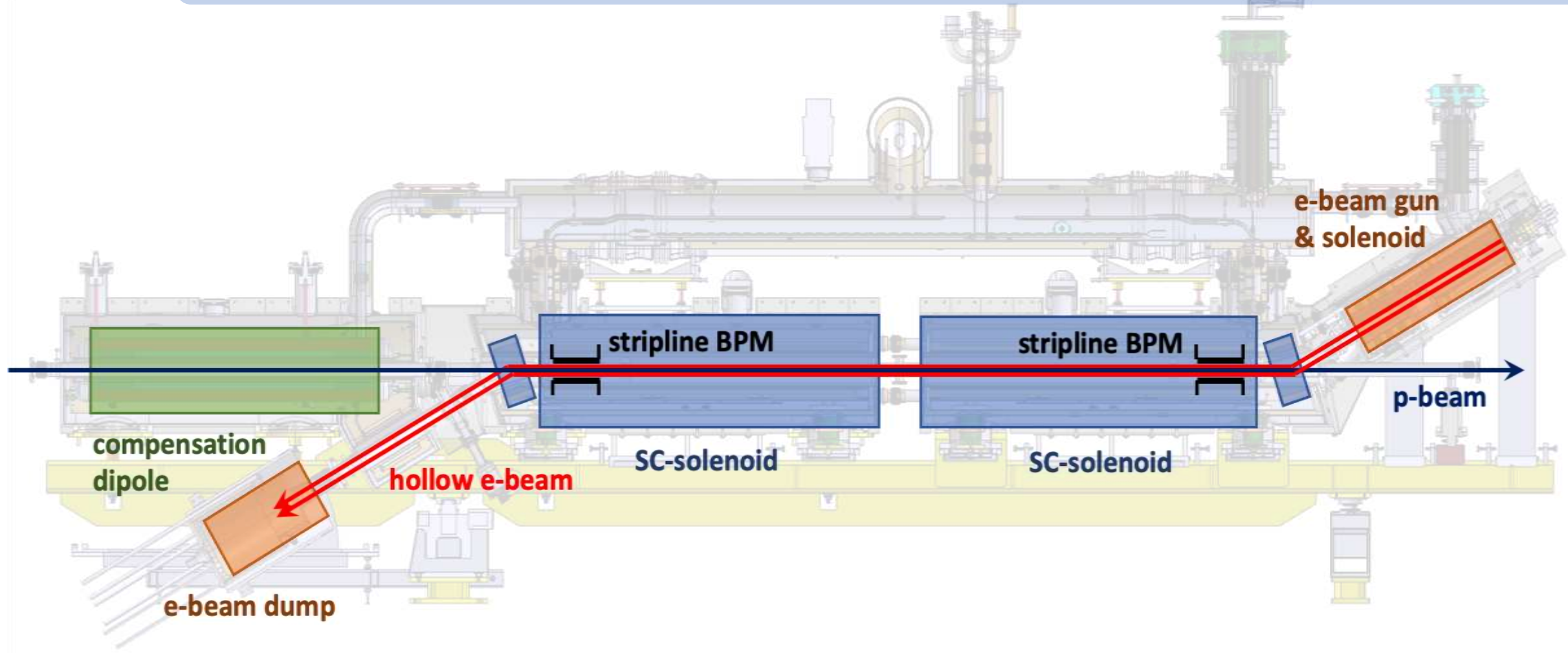
SIGNAL ANALYSIS AND DETECTION FOR THE BPMs OF THE LHC HOLLOW ELECTRON LENS

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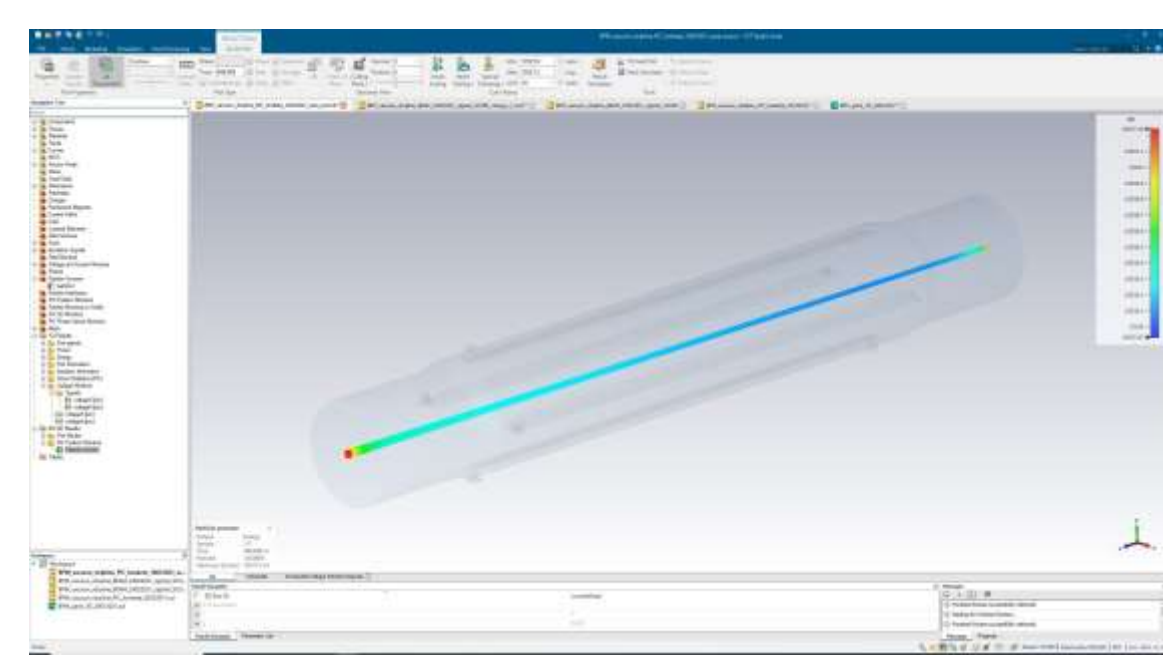
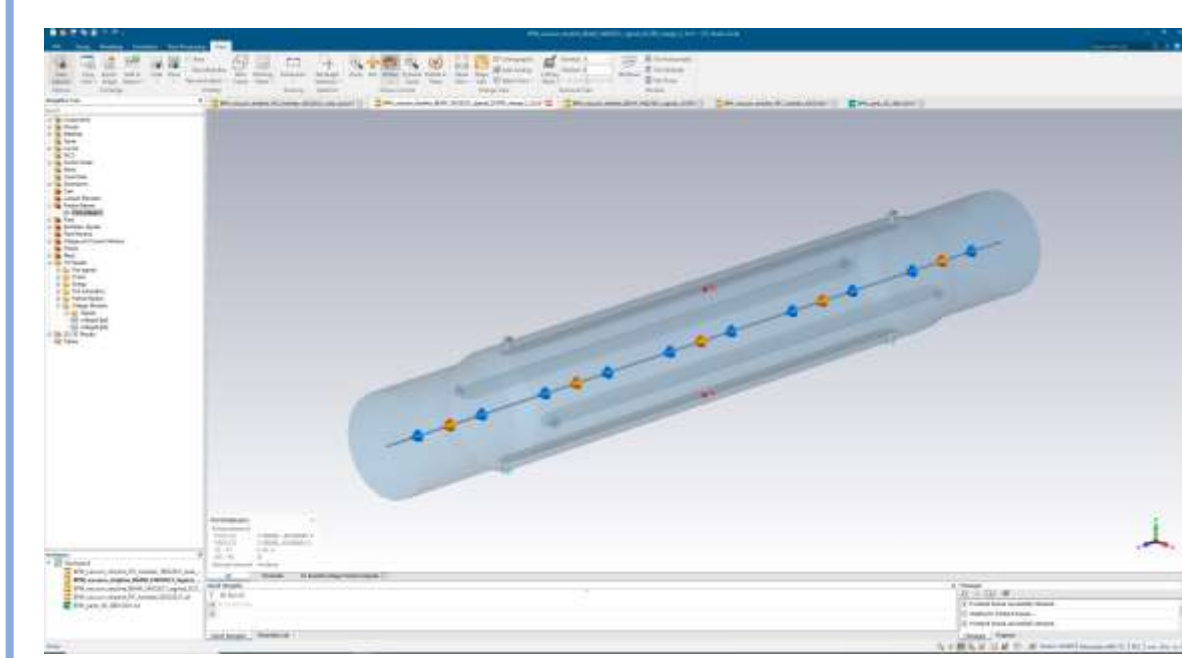
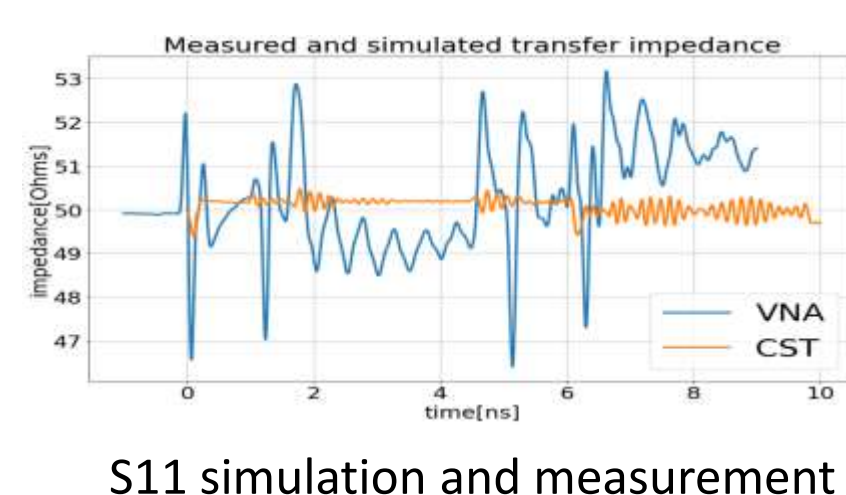
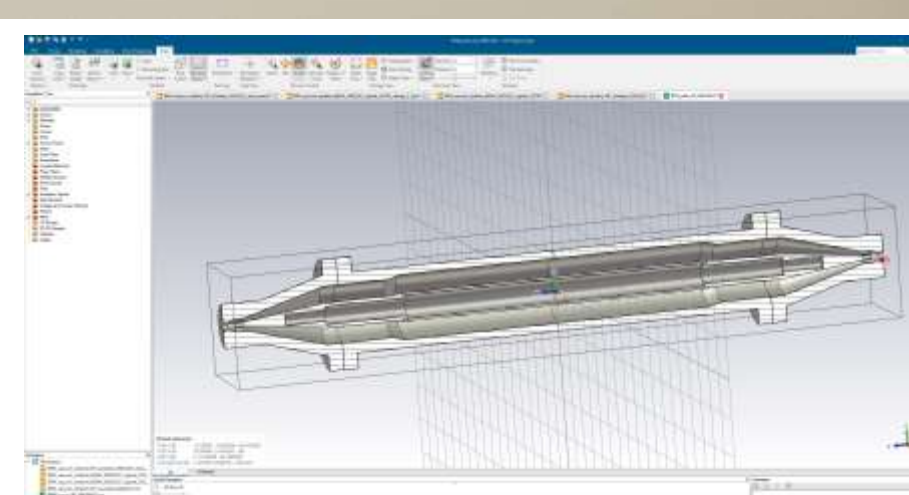
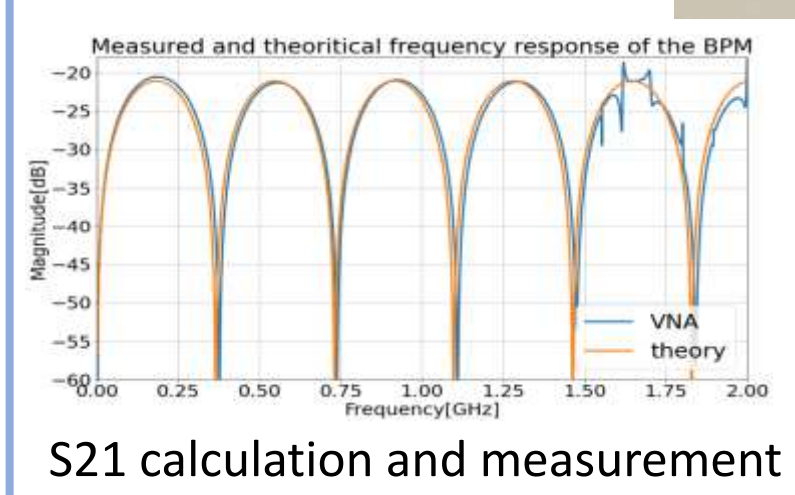


I. Introduction

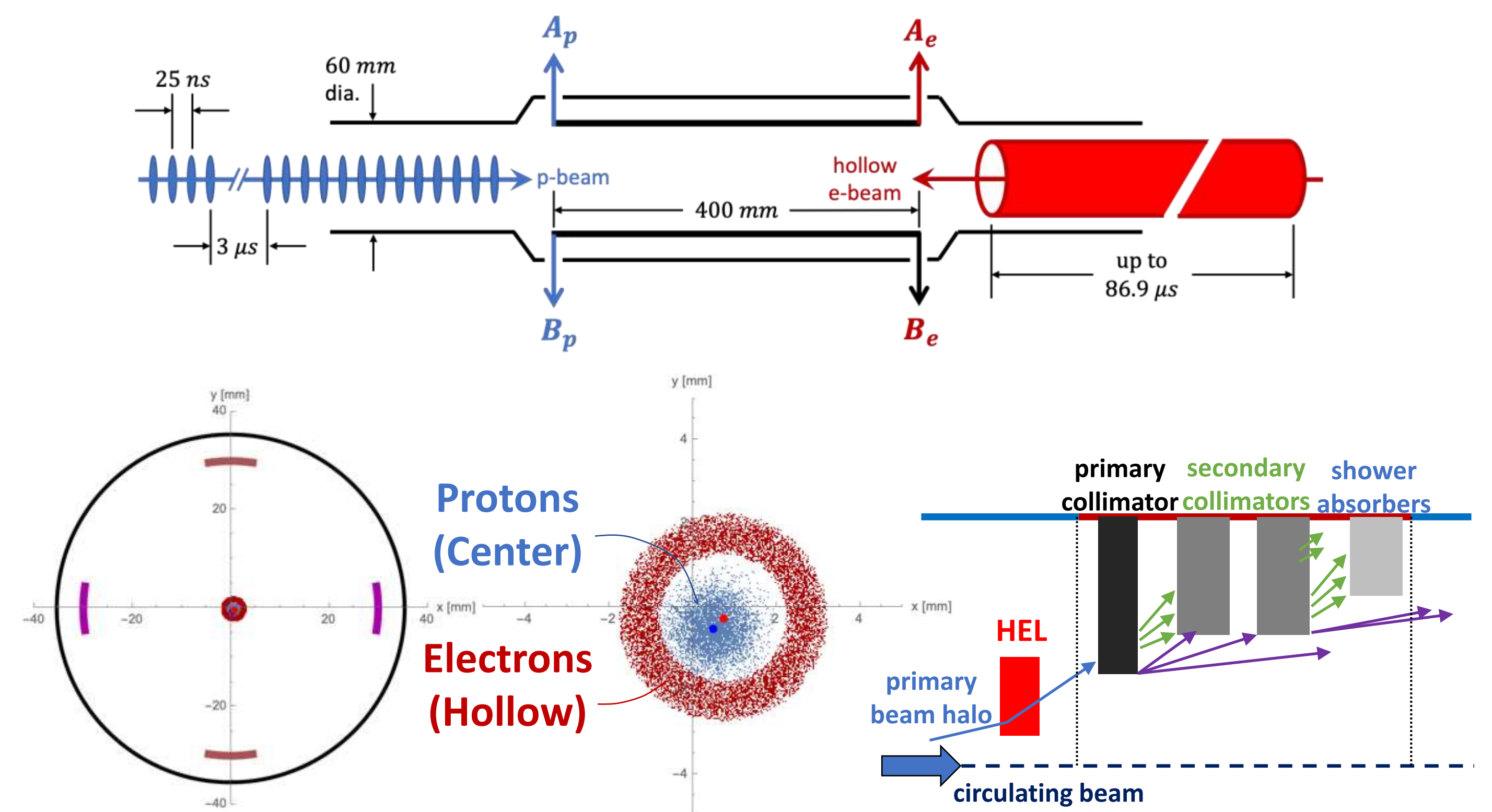
HL-LHC hollow electron lens (HEL) hadron



The HEL stripline BPM pickup

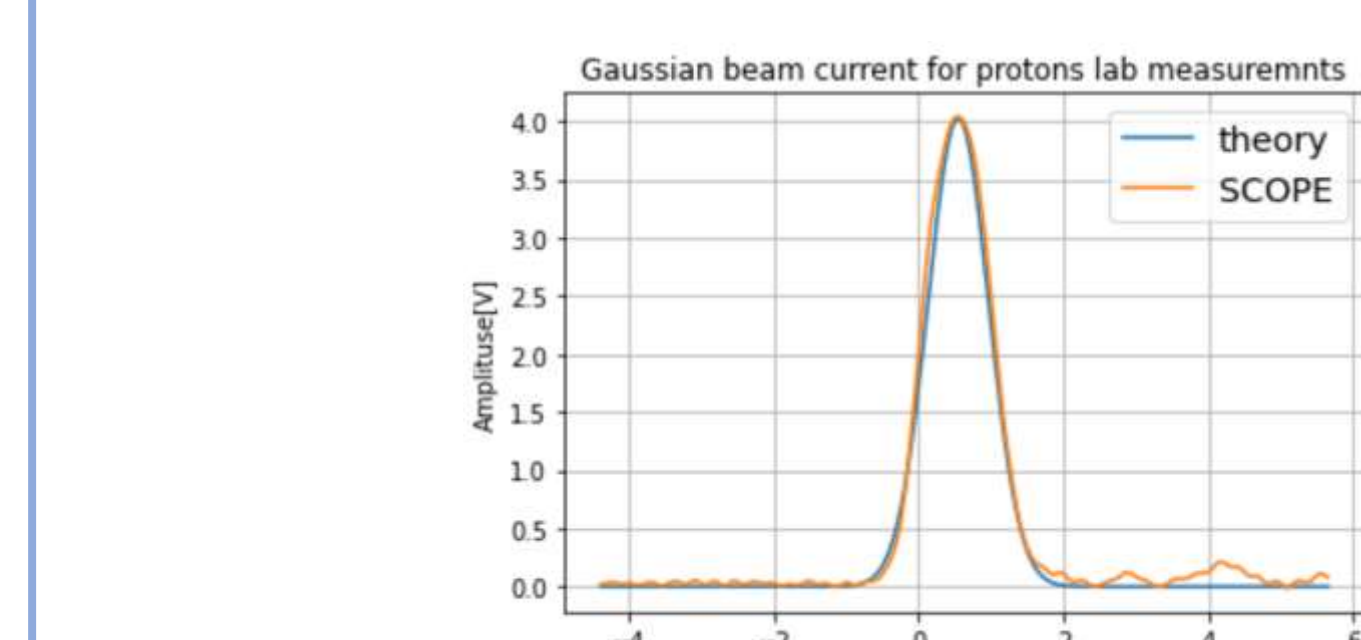


II. HEL BPM Challenge

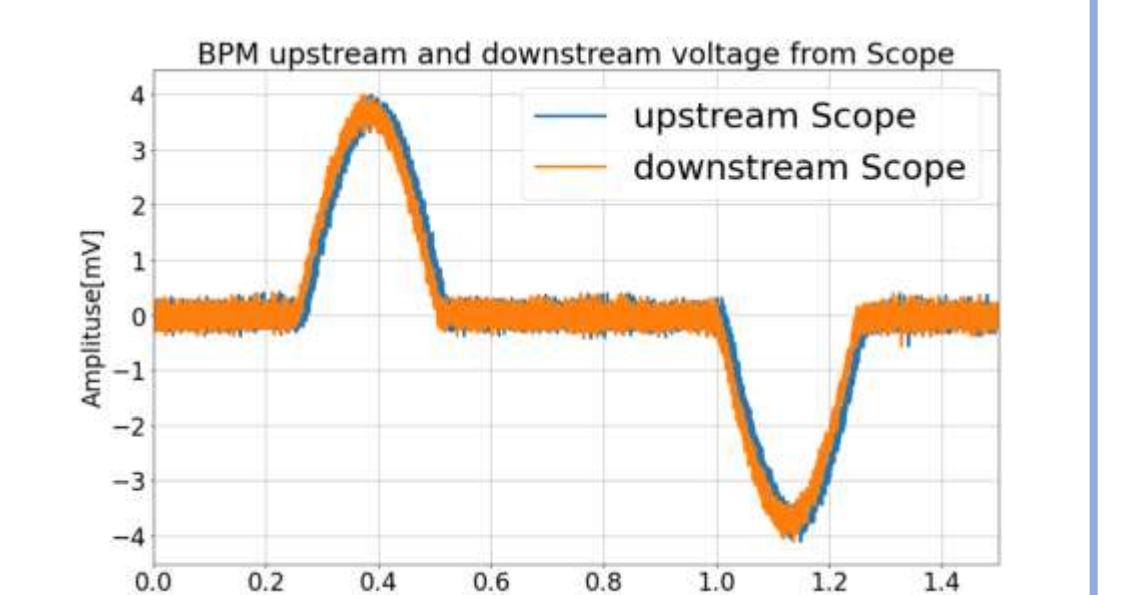
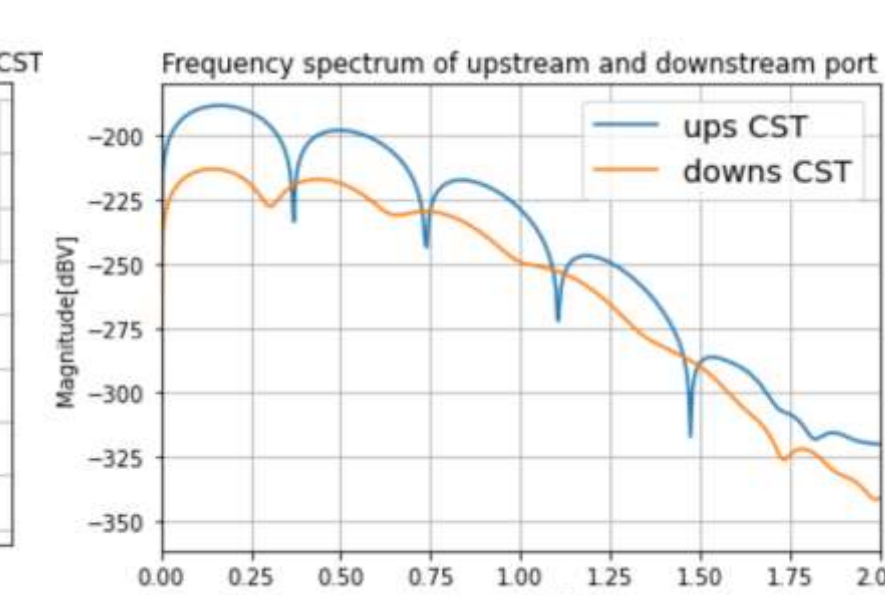
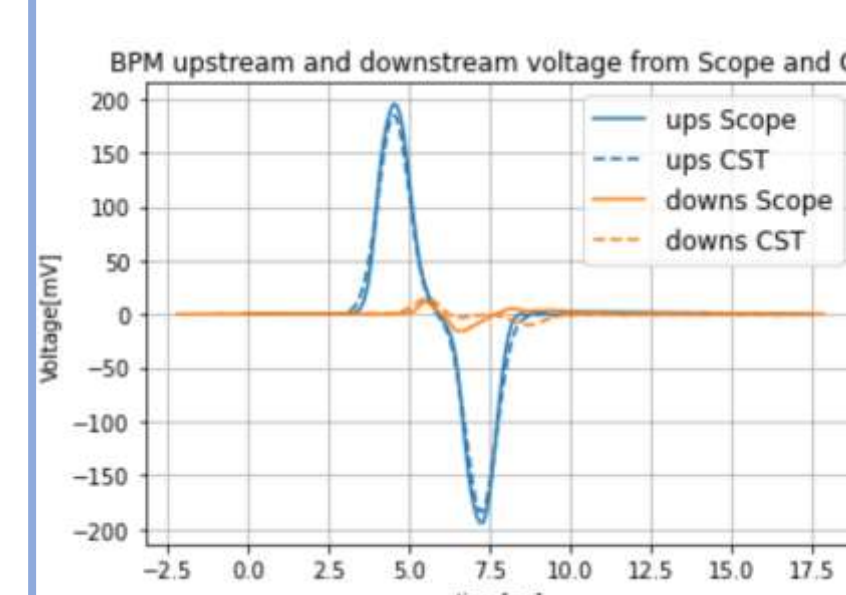
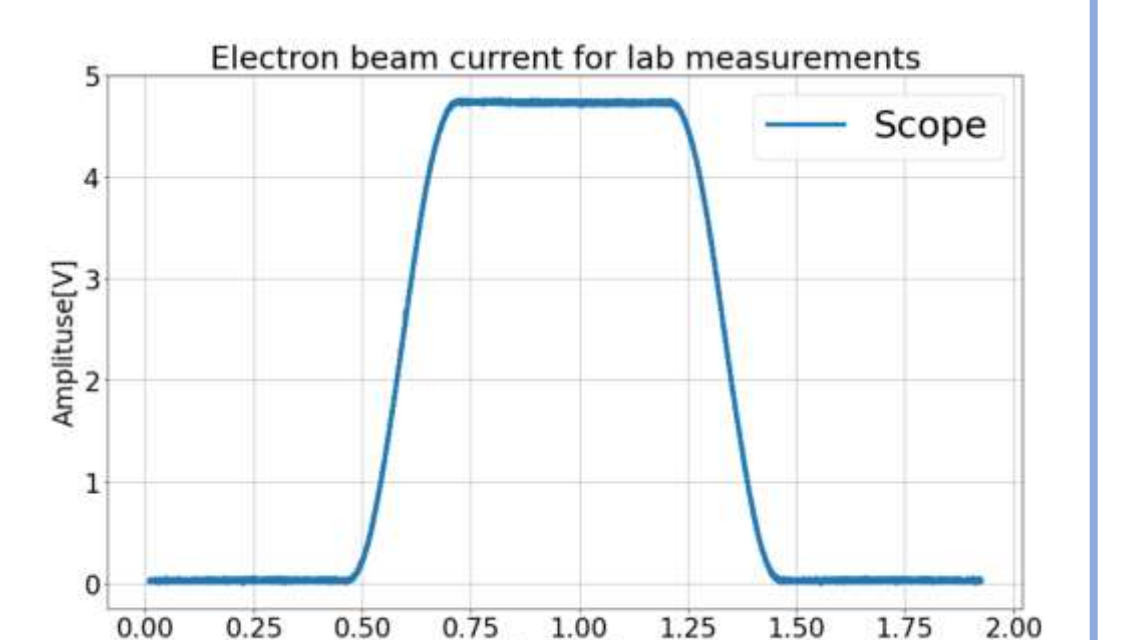


III. BPM Signal Analysis

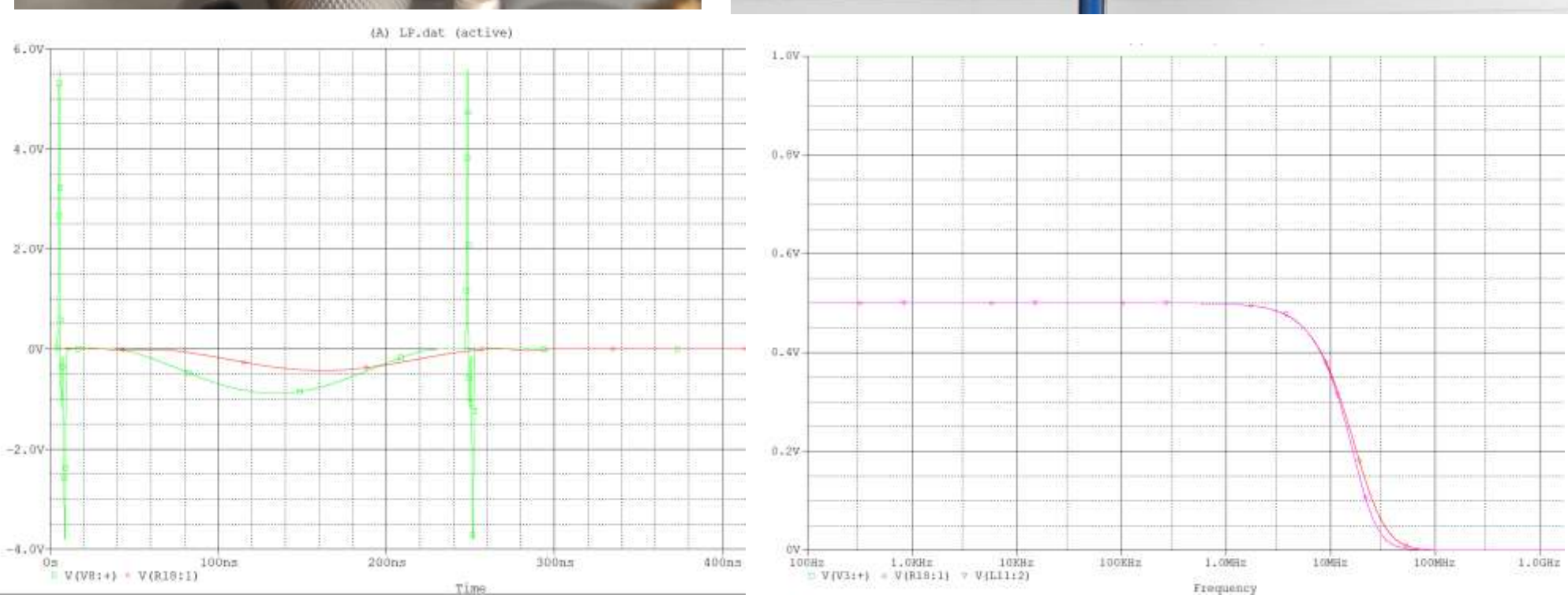
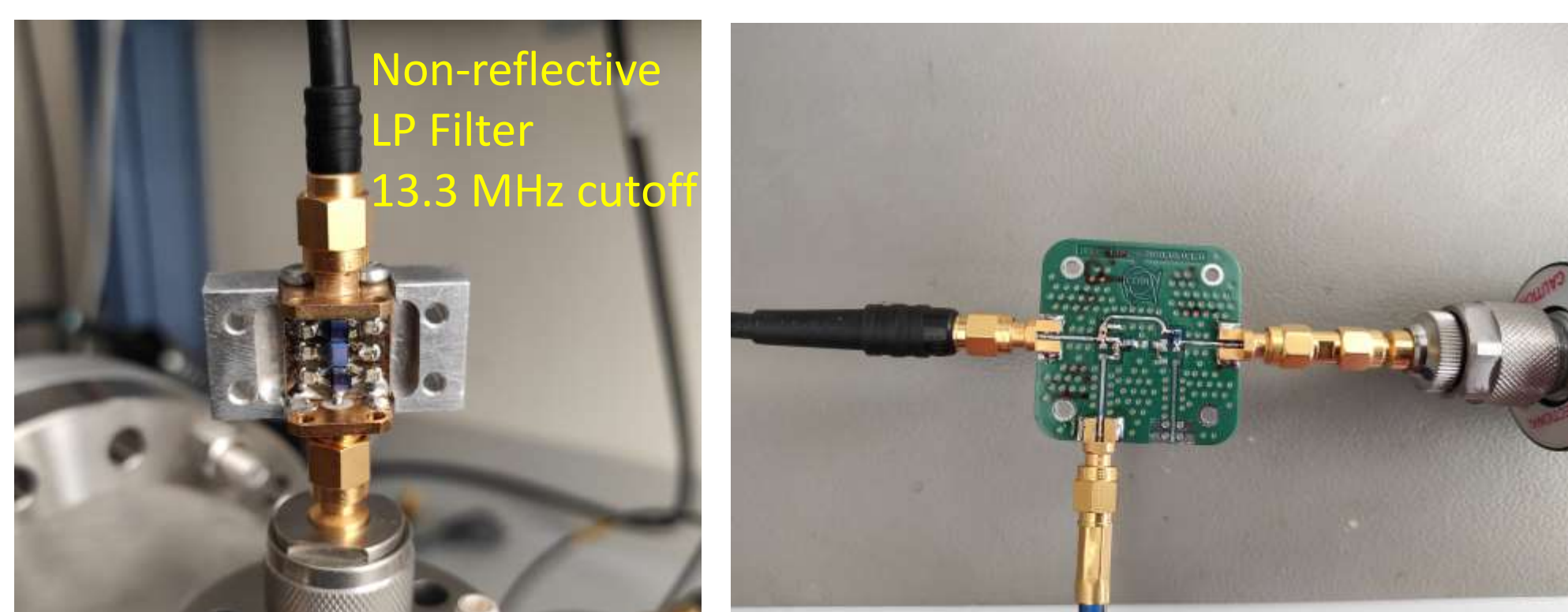
Protons



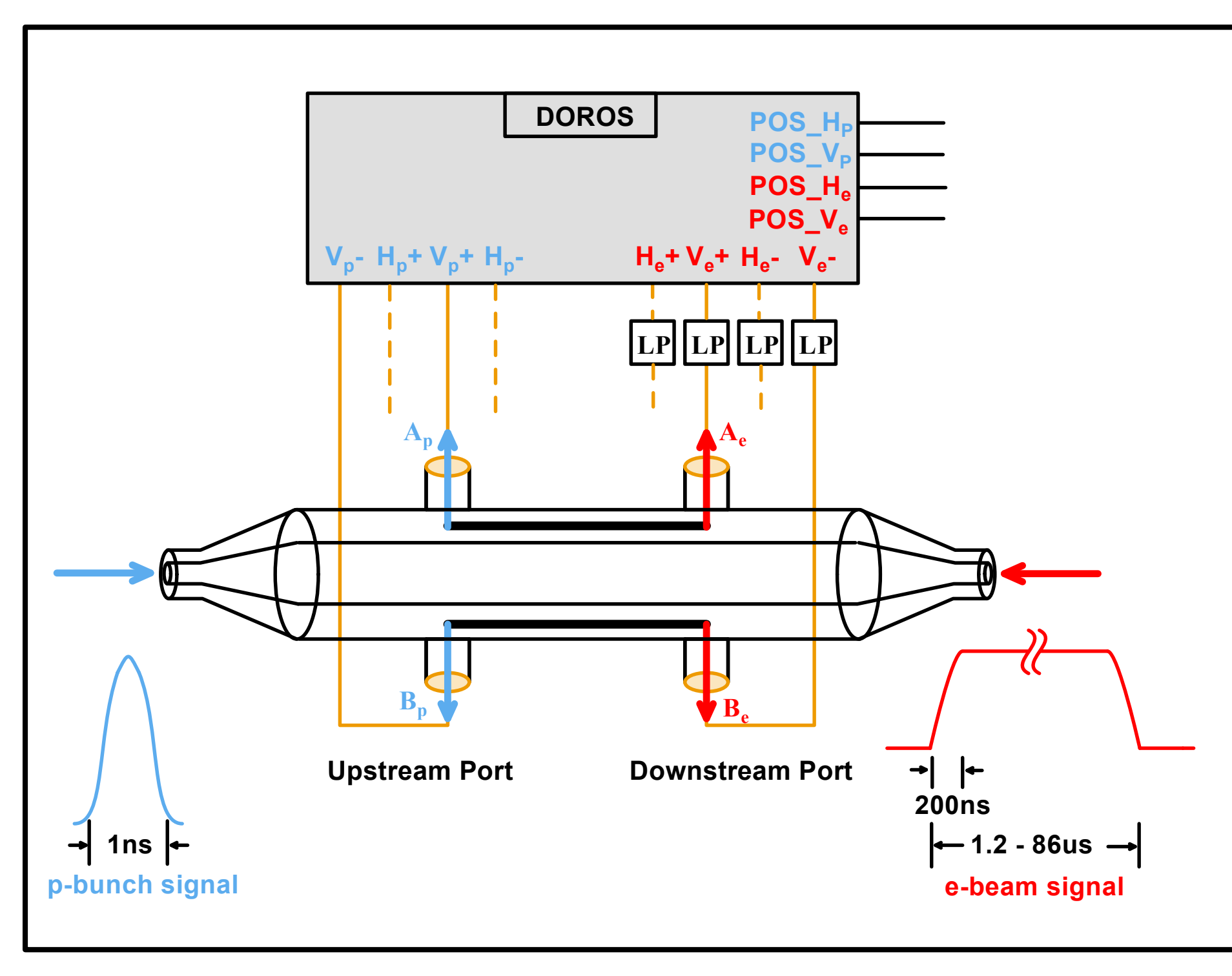
Electrons



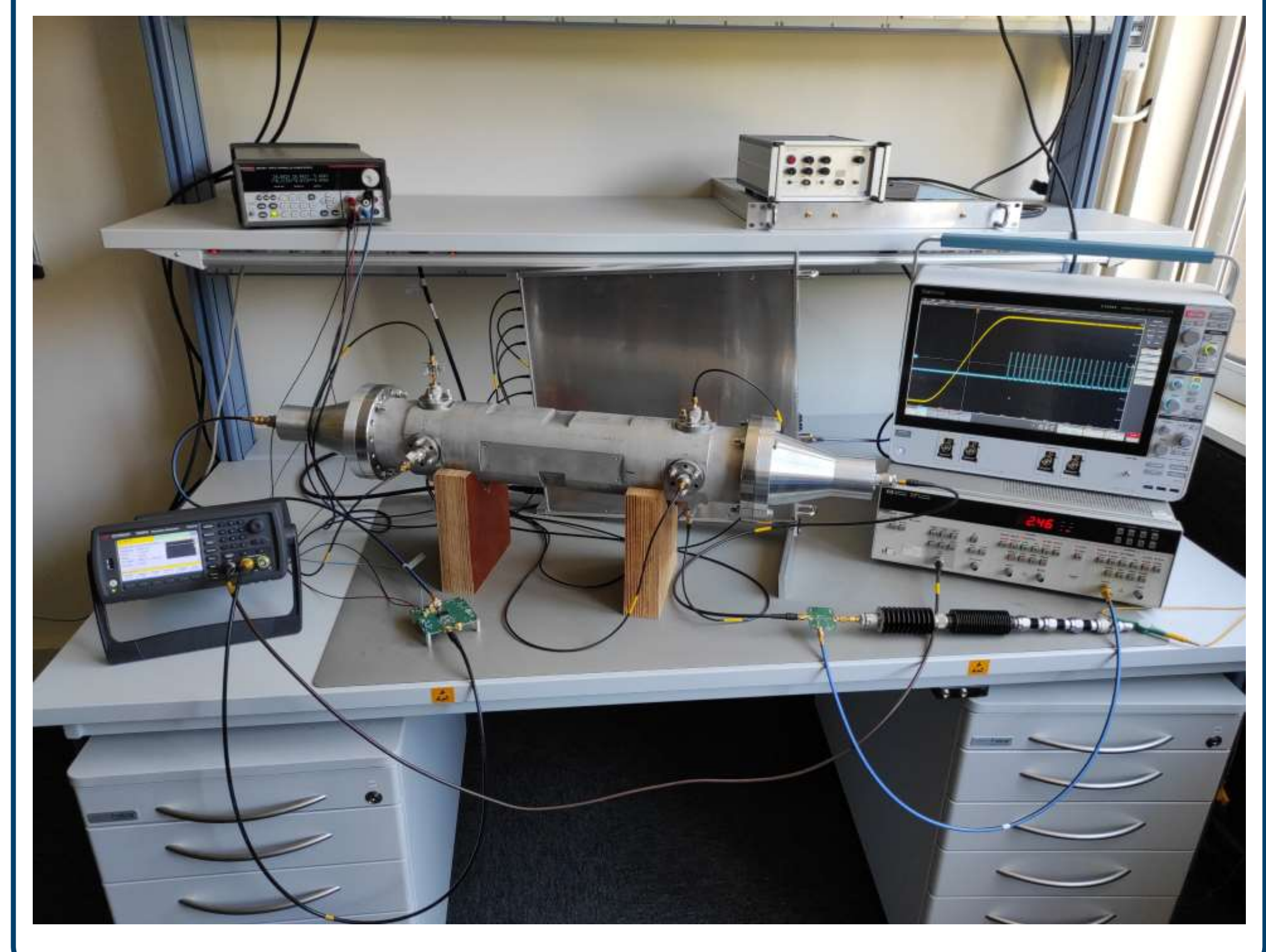
IV. Filter and Diplexer



V. Schematic

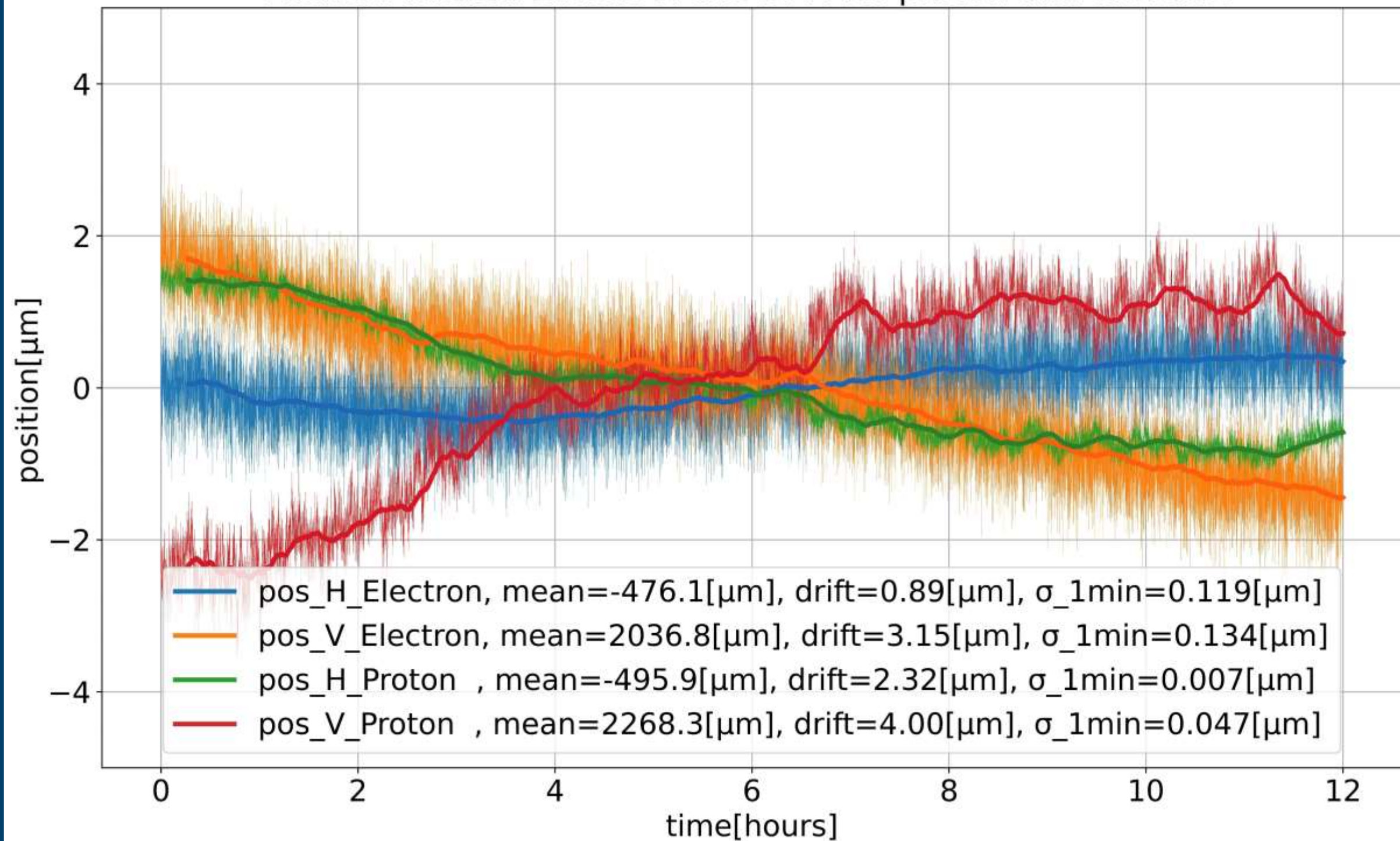


VI. Measurement Setup



VII. Measurement Results

Position measurement of the BPM for proton and electron



- Resolution < 0.135[μm]
- Long Term Drift < 4 [μm]

Position measurement of the BPM for proton and electron

