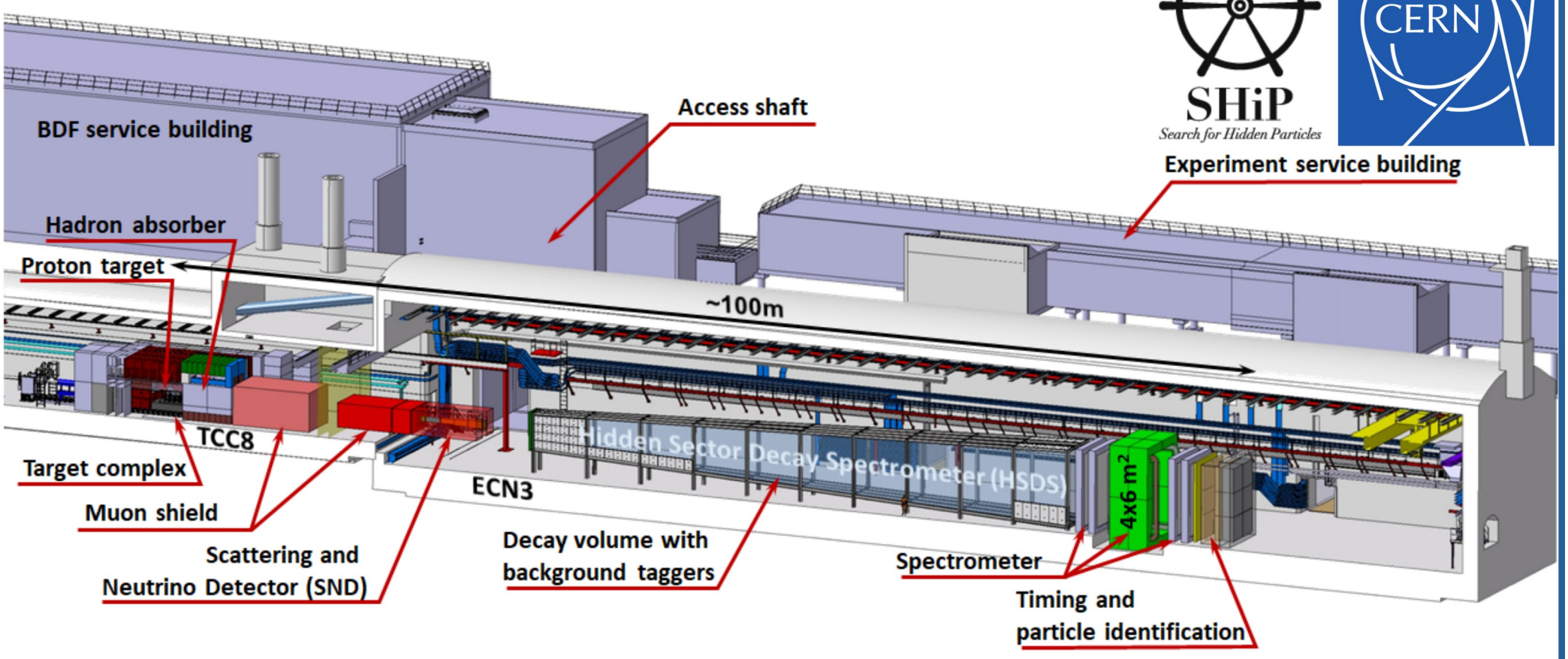
Open Bachelor/Master theses with Prof. Caren Hagner in:

SHiP



Experiment Overview:

SHiP (Search for Hidden Particles) is a recently approved general-purpose high intensity beamdump experiment at CERN. Its main motivation is the search of feebly interacting long-lived particles (FIPs) produced in the interaction of protons from the SPS with a heavy target. Such *hidden* particles are predicted by a variety of modules to explain **physics beyond the standard model**. Downstream the target, an active muon shield removes the majority of charged particles before the hidden particles enter a 50m long low pressure decay volume, where the FIPs can decay back into standard model particles. This is followed by a **high precision spectrometer** for vertex identification and reconstruction of momentum and invariant mass.

Our research group currently focuses on the design and construction of the main tracker, which will be consist of 10000 straw tubes. To cover the 4m x 6m aperture, the straws will have an unprecedented size of 4m length with an diameter of 2cm.

Topics:

- Characterization of straw tube modules
- Test of discrete pre-amplifying electronics and front end readout
- Optimization of the detector geometry

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