UT-BATTELLE

High Power Hg Target Conceptual Design Review

Equipment Installation at CERN

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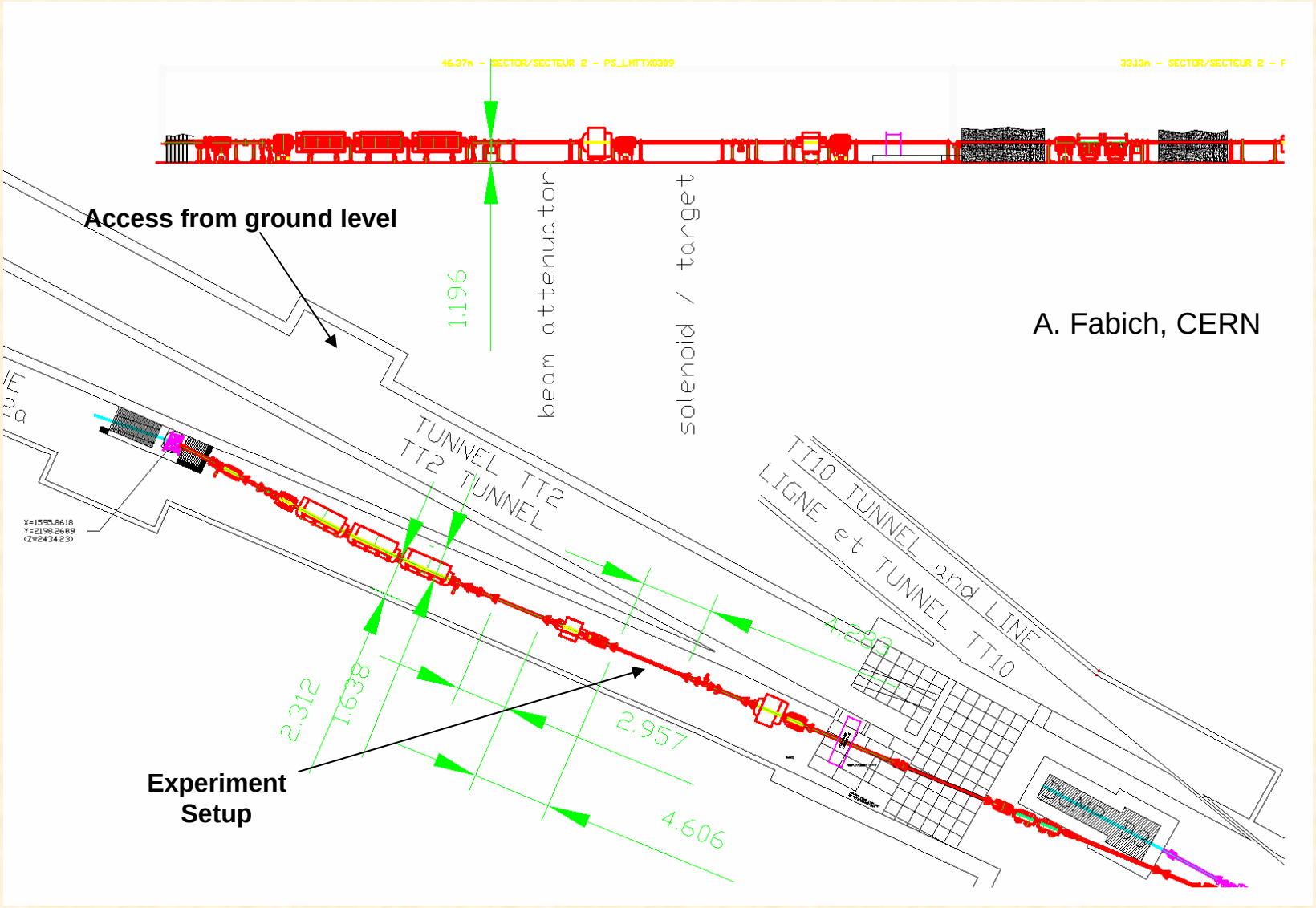
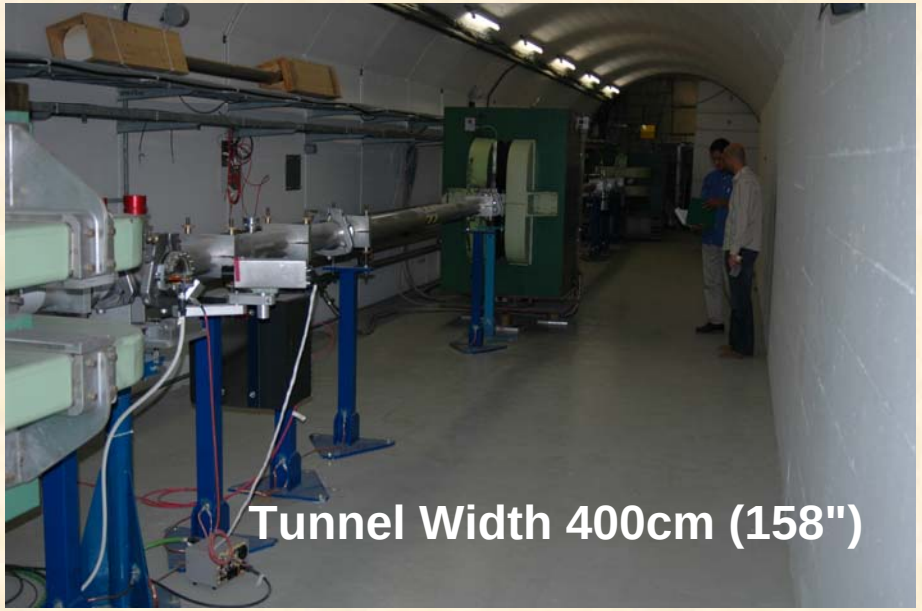
Outline

- **Facility layout & constraints**
- **Modularity**
- **Assembly sequence**
- **Post-experiment operations**

CERN Tunnel Plan View



TT2A Photos



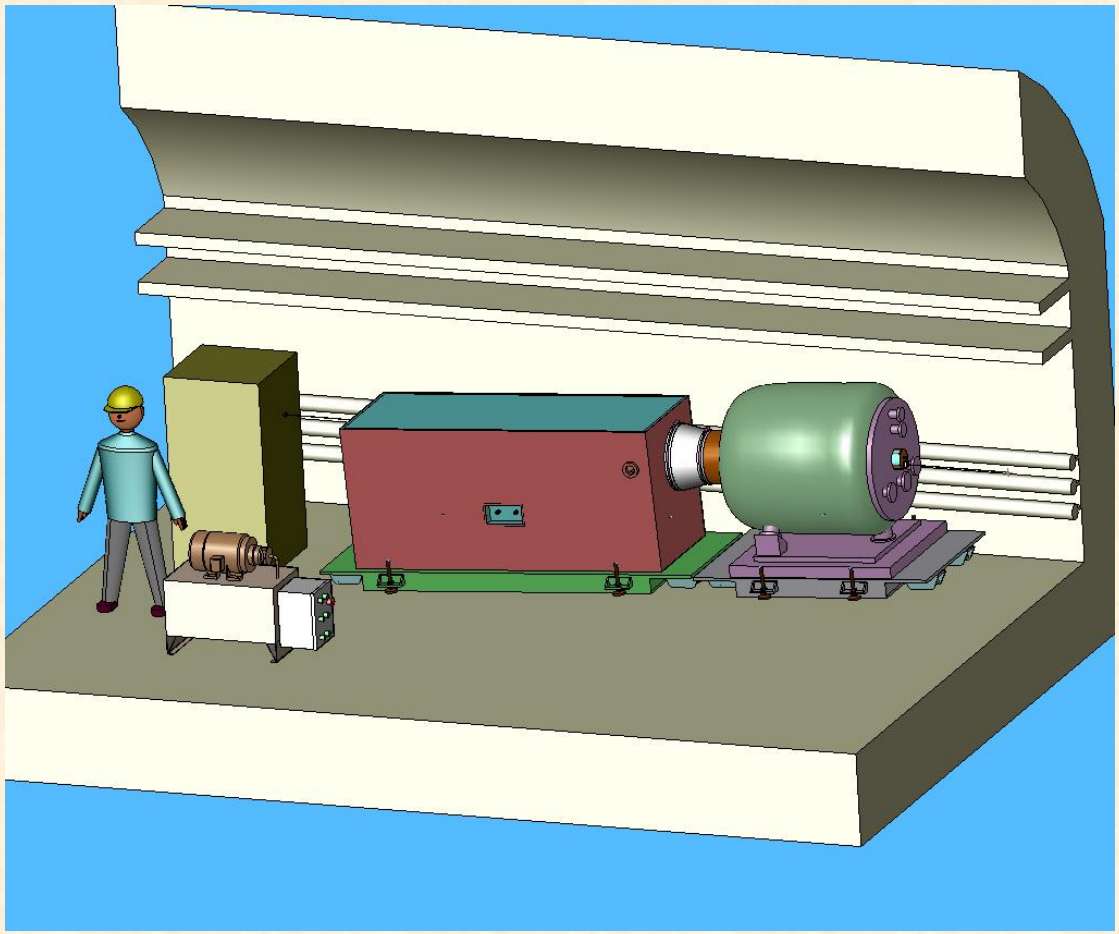
Photos from A. Fabich, CERN

Facility Constraints

- **No overhead lifting capability within tunnel**
- **Mobile crane used to lower equipment from ground level to tunnel floor**
  - **All components must have lifting points**
- **Components moved manually**
- **Modularity required**
  - **Component footprint size limitation is 1.3m x 3m**

System Modules

- **Solenoid**
- **Target module (inside solenoid)**
- **Hg delivery system**
- **Hydraulic pump & controls**



Assembly Sequence

- **Align solenoid to beam, set elevation and tilt**
  - **Fiducials assumed to be on solenoid**
- **Manually insert target module into bore of solenoid**
  - **Beam windows on primary & secondary containment can be used as fiducials to insure proper insertion depth**
- **Position Hg delivery system**
- **Align Hg delivery system as required, set elevation and tilt**
  - **Alignment precision dictated by size of downbeam window on secondary containment**
- **Connect flexible hoses**
- **Leak check primary containment**
- **Load Hg if not already in sump tank**
- **Position hydraulic reservoir**
- **Connect hydraulics & instruments**

Post-Experiment Operations

- **Minimize operator time near equipment**
- **Prefer to leave target module and delivery system intact for this operation**
  - **Lower Hg system and solenoid together**
  - **Retract Hg system, adding support for target module as it exits solenoid**
    - **Must have adequate clearance in front of beam stop**
  - **Move solenoid and Hg system out of beam line**
- **May need to operate Hg system one last time to move majority of Hg into sump tank (depends on type of sump drain valve used)**
- **System isolated for radiation decay**