Hall A Configuration

Robin Wines

Components of PREX-II and CREX

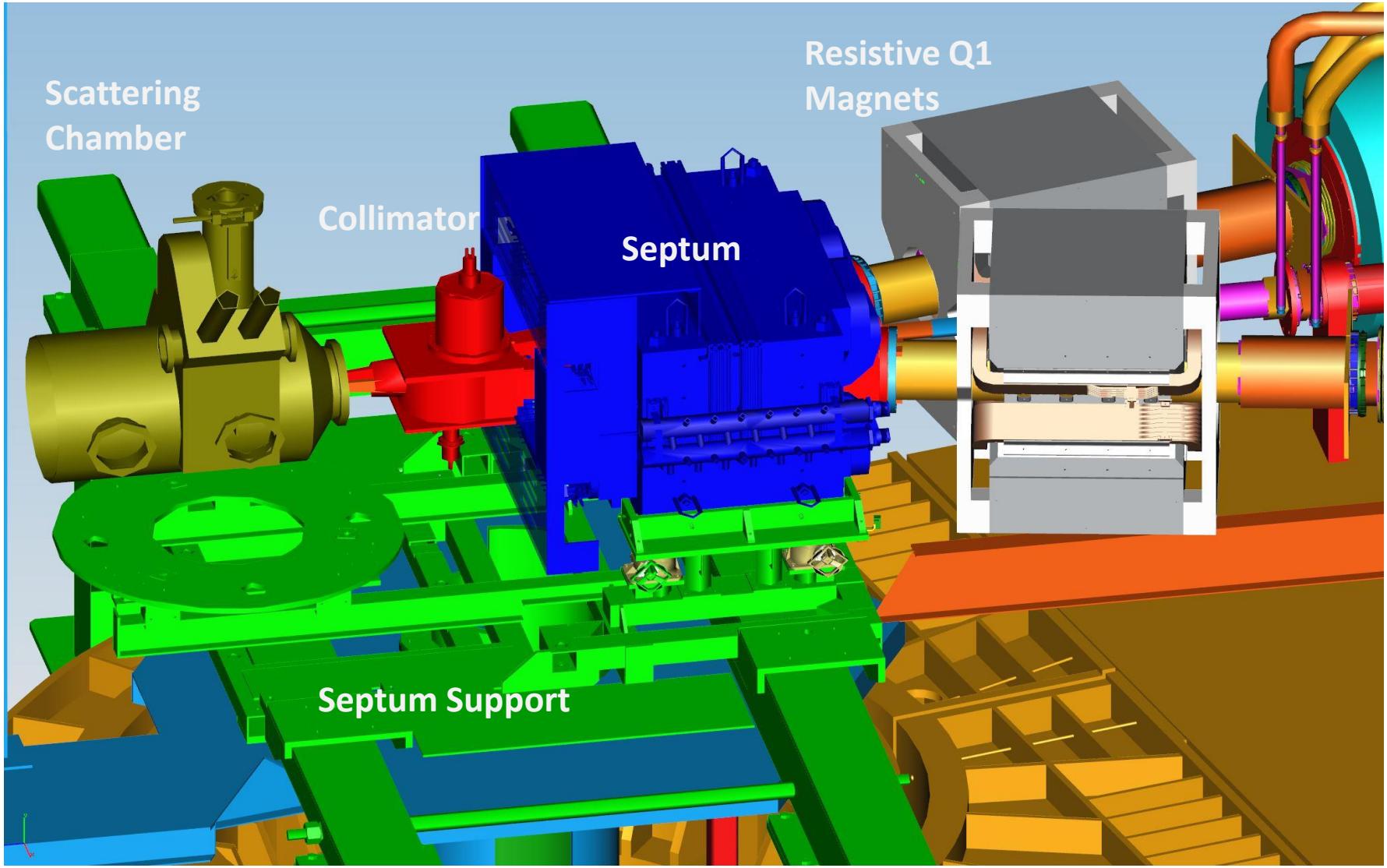
Base Equipment

- **Left and Right HRS with SOS resistive Q1s**
- **Septum Magnet Support**

Non-Base Equipment

- **Scattering Chamber with Targets (Silviu)**
- **Septum Magnet (Juliette)**
- **Vacuum Chambers**
- **Collimator Box /Sieve Slit**
- **Collimator in Q1 entrance**
- **Magnetic Shielding of Beamline (Yves)**
- **Radiation Shielding (Kent)**

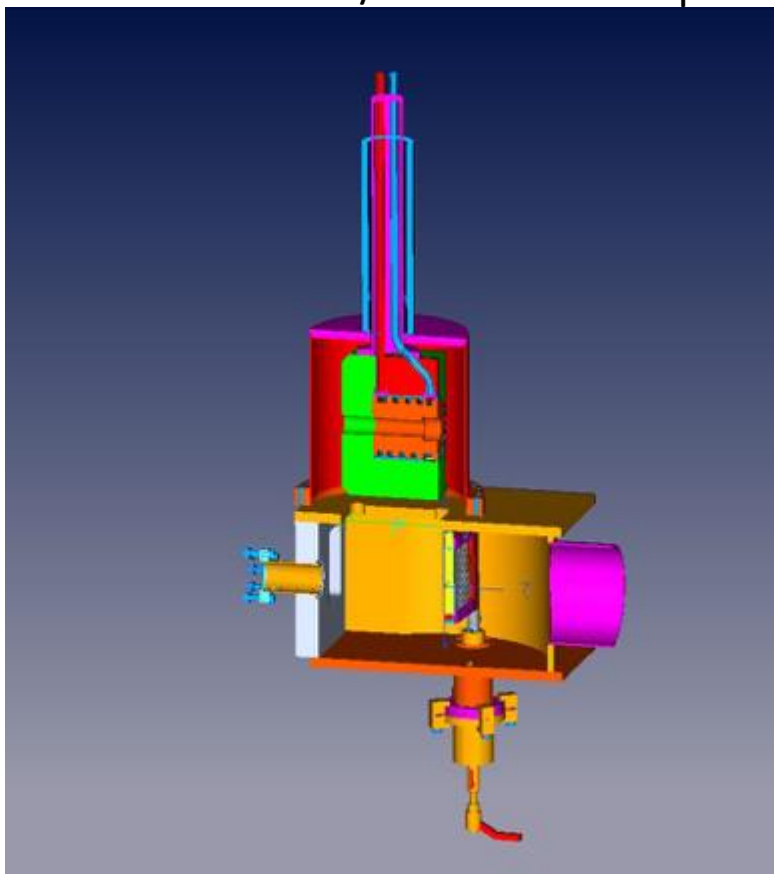
Hall Configuration



Status of Components

- **Scattering Chamber – Conceptual design integrated into Hall A configuration. Chamber is being designed by contract designer to incorporate targets for both PREX-II and CREX. Design to be reviewed by Design Authority according to EH&S regulations prior to fabrication. Support to be determined.**
  (4MW design, 2 MW engineer required)
- **Collimator/Sieve Slit – modification of existing design used for Qweak experiment, water cooled Tungsten with Copper jacket. Water cooling from contained recirculating system. Design concept in CAD model, needs to be confirmed for operation and fabrication.(10 MW design, 4MW engineer required)**

Collimator/Sieve Slit concept



Status of Components

- **Septum Magnet**

- **Utilizing existing septum with design configuration of 3 sets of coils and shims. Magnet has been rebuilt for 2 coil set configuration; replaced one damaged coil. For 3 coil set operation additional damaged coil will need to be replaced, drawings exist.**
- **CREX requires operation of magnet at higher current than previously tested; maximum current and field saturation will need to be tested and confirmed.**
- **Hall A LCW currently allows for 200 GPM. Septum operation requires 100 GPM, need confirmation that sufficient cooling can be provided to septum.**
- **(4MW engineer, 2 MW technician)**

Status of Components

- **Septum support – Utilizing existing support as previously used for PREX. Design and structural evaluation needed to incorporate support of collimator, shielding and target. (4 MW design, 2MW engineer)**

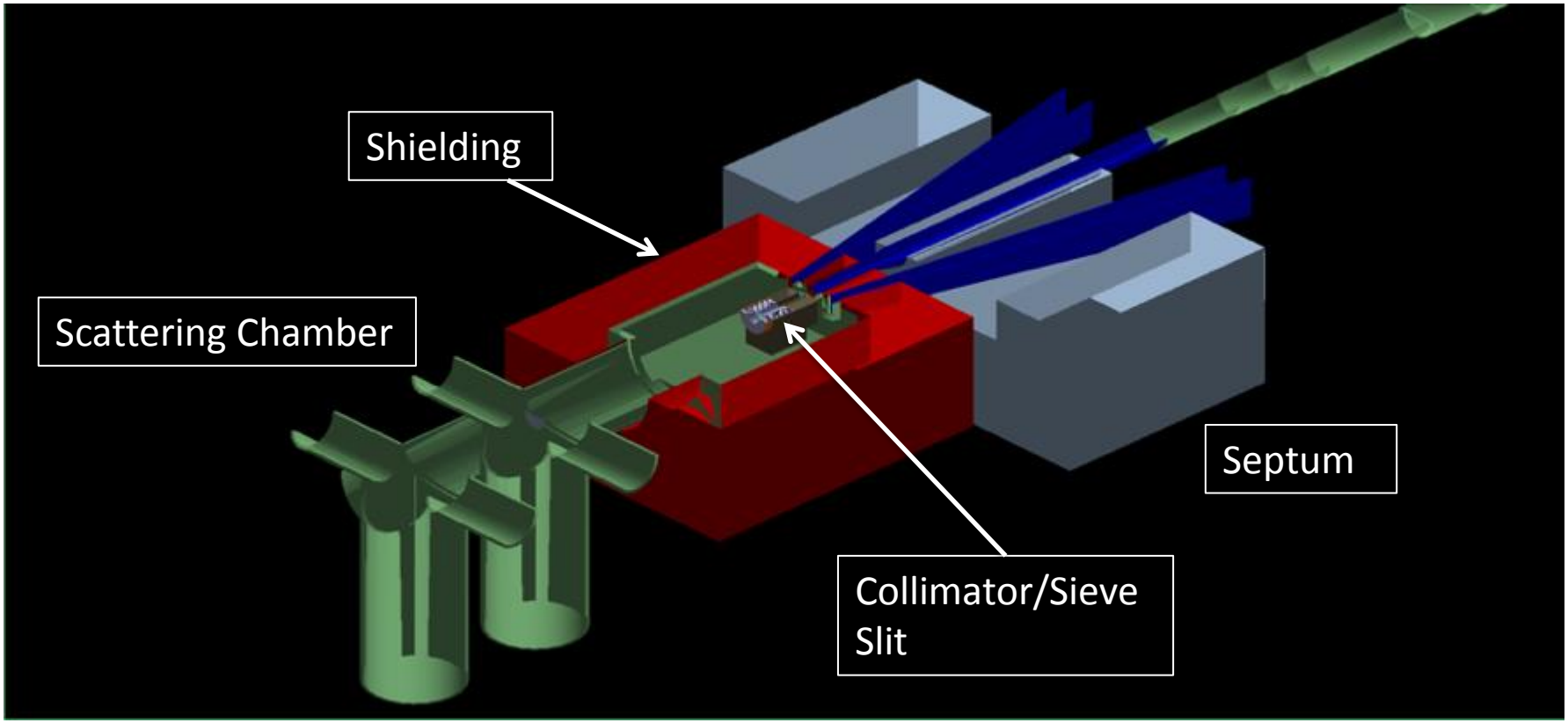
- **Beam line – Using existing beam line with addition of magnetic shielding around bellows upstream and downstream of septum magnet. Residual fields of magnets to be marked accordingly in Hall.(4 MW design, 2 MW engineer)**

- **Vacuum Chambers – New chamber required through septum to HRSs. (6 MW design, 2 MW engineer)**

- **Collimator in entrance of Q1 – New design to accommodate use of resistive SOS Q1 magnet entrance. Otherwise same design concept as used in PREX. (4MW design, 2MW engineer)**

Status of Components

- **Power Supplies – Utilizing existing power supplies for septum magnet.**
- **Shielding – New design . Concept developed that needs to be incorporated into design and fabrication. (8MW design, 3MW engineer)**



Summary

Charge 6: EHS&Q considerations included in designs……..

- **All equipment will be reviewed by Jlab staff and documented according to ESH&Q policies.**
- **Layout and component requirements are known for Experiments.**
- **Design and engineering tasks remaining:**
  - design and procurement of scattering chamber
  - collimator box/sieve slit design and procurement
  - septum magnet testing and confirm all LCW requirements
  - magnetic shielding design and procurement
  - vacuum chamber design and procurement
  - Q1 collimator design and procurement
  -radiation shielding design and procurement

which will require total of 40 mw design and 23 mw engineering (not included : target chamber design, electrical engineering and technician efforts)