

50L Outstanding design tasks

Maria Simanovskaia
October 7, 2025

Finalizing details of many components, others are waiting on the magnet to arrive

Going to repeat slides from the intro talk to highlight some of the outstanding design tasks not mentioned in other presentations.

Detailed list of to-dos: [link to list](#)

From last collaboration meeting: cryogenics

DMRadio-50L cryogenics to-dos

Before 50L is assembled and operational, need to

- Get Snoopy into prime operating shape (Maria) screw pump tip seal, extra still support
- Achieve target gradients with cold snout testing (Aya) see Aya's talk 8/5
- Build 4 K flexible connection (Aya) design & build
- Build 40 K flexible connection (Aya) design & build
- Build vacuum adapter plate to bellows (Aya) design & build
- Build and validate Woodstock (Four Nine Design) build & validate
- Design and make wiring for Woodstock (Nicholas) SQUID wiring, other wiring?
- Design and build 4 K cryoperm shield (Nicholas) roughly designed
- Design and build 1 K plate and shield (Tori) see Tori's talk 8/5
- Design and build 20 mK plate and accessories (Jessica and Maria Salatino) see Jessica's and Maria's talks 8/5

See Aya's talk 10/8

See Tori's talk 10/8

See Jessica's talk 10/8

work in progress

From last collaboration meeting: de-ceiver

DMRadio-50L "De-ceiver"

Before 50L is assembled and operational, need to:

- Build and validate toroidal magnet **work in progress** (Chelsea's talk 8/6)
- Finalize connector bracket design and build (Nicholas) see Nicholas' talk 8/6
- Finalize / gather together the parts of the magnet components
- Design and build sheath (Nicholas)
- Design and build tunable transformer **work in progress** (Jessica, John, Nicholas, etc)
- Design and build SQUID board and wiring (Nicholas)
- Design and build resonator **work in progress** (Roman)
- Make sure de-ceiver is possible to assemble (Aya, Chiara's talk 8/6)

SSI is testing the magnet!

See Nicholas' talk 10/7

See Tori's talk 10/8

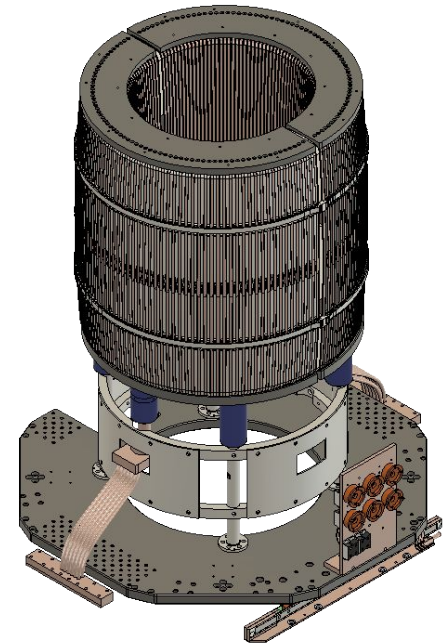
See Roman's talk 10/8

See Aya's talk 10/7

Waiting to receive the magnet at Stanford before...

... completing all the components that have tight magnet interfaces, including:

- Constructing Nb skirts
- Constructing snorkel
- Machining the sheath
- Machining the magnet 4 K plate cover
- Remaking the long magnet legs and shear supports to fit

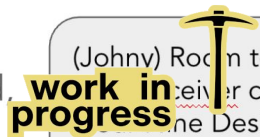


From last collaboration meeting: facilities

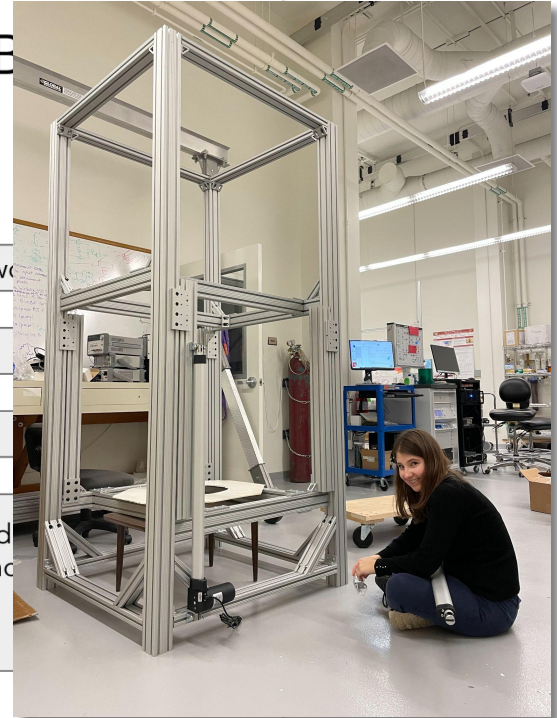
DMRadio-50L location: Stanford

Before 50L is assembled and operational, need to:

- Install new 3-phase outlet in the dog house (Maria) quote received
- Tee-off cooling water in the dog house (Maria) to-do
- Raise room lights (Maria) to-do
- Design and build lifting and assembly structures (room temperature stand, receiver cage, crane system) **work in progress**



(Johny) Room temp stand design and build
(Johny) Receiver cage is mostly designed, who
(Johny) Crane system
(Maria) Certification of crane system

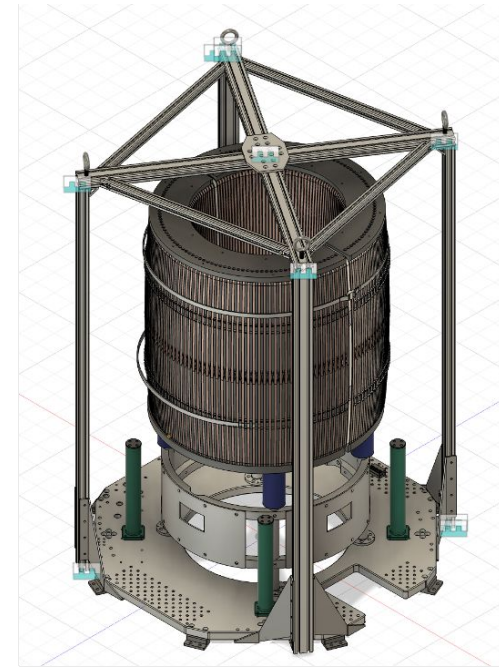


Outstanding item for room temperature infrastructure is the lifting mechanism

We need the lifting mechanism finalized and constructed ASAP so we can start assembling in the room temperature stand and move the assembly to Woodstock rather than carry and lift bulky items one-by-one.

For now, we can manage assembly without it.

Alex is working on finalizing the design.



CAD screenshot from last collaboration meeting

Thanks for listening!