

Scott Bole is the chief engineer of the National High Magnetic Field Lab in Talahassee, Florida. He and his team had constructed the HZB high field magnet. He came now to Berlin to make sure that the complicated construction is perfectly adjusted. In this short interview at the HZB Cafeteria, he explains which steps need his attention and why the HZB magnet is something special, even for him, who has participated in the construction of 20 magnets for research.

Meeting with Scott Bole in the cafeteria:

I am Scott Bole, the chief engineer of the National Magnet Lab. We have been in charge of designing the actual hardware of the magnet system.

Are there some problems which might need your experience?

Possibly, it is mostly just a monitoring function, there are a lot of complicated steps, just to make sure that we do everything in order and every step correctly. It is hard to back up, some things are final. You cannot undo them. So it is very important that you pay attention while you do all these important steps.

For which specific steps are you now in Berlin?

The tricky part is: there are two magnets inside the system, the superconducting magnet, which is in vacuum and very cold, and in the inner diameter, there is the resistive magnet and which is water cooled. And the magnets interact with each other. So it is very important that they are centered correctly to minimize the interaction. And that is where the suspension system comes in.

Is this a mechanical suspension with chains?

There are eight titanium rods and they are in such a configuration that they properly support the superconducting magnet. We like to keep it centered within a fraction of millimeters. So when we actually tightened the suspension system on Friday, we had a way to measure how the magnet is moving, because we cannot look inside. But we have a certain feature which we can measure while we tighten the suspension system. And I think when we are done the magnet has moved .2 mm, that is very good.

-so Friday we did the readjustment. And then there is some final welding, and that is one of the steps, which is very hard to back up. That is very hard to undone it.

Did you do the welding yourself?

No, they sent a welder from Chivasso, he finished the welding. I think they sent their best welder here from Italy. And we adjusted the links, and he finished the welding and we put the cryostat back under vacuum, to verify that all the welds are good and that is where we are this morning.

What are the next steps now?

So right now the cryostat is lying on its side, like in its bed, sleeping. So on Wednesday we are planning to flip it up so the bore becomes horizontal and that will be the final configuration how the magnet is operated. So for shipping it was lying down with the bore pointing towards the sky and they will flip it up so the bore is parallel to the ground. That is how we configured it for use in the neutron hall.

Hopefully we get it flipped up on Wednesday and then we have some more work to do on the suspension system because the configuration of the weight will change. So we adjust the suspension system and I hopefully will go home smiling.

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