Contribution ID: **31** Type: **not specified**

From manufacture to assembly of the ITER central solenoid

Thursday, 20 September 2018 16:20 (20 minutes)

The Central Solenoid (CS), a key component of the ITER Magnet system, using a 45 kA Nb3Sn conductor, includes six identical coils, called modules, to form a solenoid, enclosed inside a structure providing vertical pre-compression and mechanical support. Procurement of the components of the ITER CS is the responsibility of US ITER, the ITER Domestic Agency of the USA, while the assembly of these components will be carried out by the ITER Organization (IO).

In order to manufacture the CS components, US ITER placed a set of orders with industry. Procurement of all the coil modules was awarded in 2011 to General Atomics, that installed from 2012 to 2014 a dedicated manufacturing line in Poway, CA, enabling manufacture of the first module to start in 2015. Procurement of the structure is split among several manufacturers, using existing equipment, sometimes among the largest ones in the world.

Assembly of the ITER CS will require a dedicated area in the ITER Assembly Hall, conventional tooling and special tooling. US ITER is in charge of the procurement of special tooling, while IO is responsible for the procurement of the conventional one. A detailed assembly procedure is under development at US ITER, in close collaboration with IO and with the support of CEA. Procurement of the special Assembly Tooling is carried out by US ITER, the main part of the first item, the Assembly Platform, having been manufactured and delivered to IO in 2017.

The paper describes the progress of the manufacture of the CS components and of the Assembly Tooling, provides an overview of the assembly procedure and presents the actions on most critical issues undertaken in preparation of the assembly at the ITER site.

The views and opinions expressed herein do not necessarily reflect those of the ITER Organization.

Co-authors: Dr LIBEYRE, Paul (ITER Organization); Dr SCHILD, Thierry (ITER Organization); Dr BRUTON, Andrew (ITER Organization); Dr CORMANY, Carl (ITER Organization); Dr DOLGETTA, Nello (ITER Organization); Dr GAXIOLA, Enrique (ITER Organization); Dr JONG, Cornelis (ITER Organization); Dr MITCHELL, Neil (ITER Organization); Dr EVANS, Dave (ITER Organization); Dr LEVESY, Bruno (ITER Organization); Dr BEDAKIHALE, Vijay (ITER Organization); Dr GARCIA SANCHEZ, Pablo (ITER Organization); Dr MARIANI, Antony (ITER Organization); Dr OKUGAWA, Ryutaro (ITER Organization); Dr REIERSEN, Wayne (Oak Ridge National Laboratory); Dr MARTOVETSKY, Nicolai (Oak Ridge National Laboratory); Dr EVERITT, David (Oak Ridge National Laboratory); Dr HUGHES, Duke (Oak Ridge National Laboratory); Dr REAGAN, Travis (Oak Ridge National Laboratory); Dr FREUDENBERG, Kevin (Oak Ridge National Laboratory); Dr HATFIELD, Daniel (Oak Ridge National Laboratory); Dr CHAE, Timothy (Oak Ridge National Laboratory); Dr VANDERGRIFF, David (Oak Ridge National Laboratory); Dr SGOBBA, Stefano (CERN); Dr AVILES, Ignacio (CERN); Dr DECOOL, Patrick (CEA); Dr VALLET, Jean-Claude (CEA); Dr NUNIO, François (CEA)

Presenter: Dr LIBEYRE, Paul (ITER Organization)

Session Classification: O3.B

Track Classification: Magnets and Power Supplies