



Contribution ID: 68

Type: **Regular 15 minutes Oral Presentation**

## Completion and test of the first ITER TF coil winding pack by Europe

*Tuesday 29 August 2017 10:45 (15 minutes)*

The ITER magnetic system includes 18 Toroidal Field (TF) Coils constructed using Nb<sub>3</sub>Sn cable-in-conduit superconductor. Each TF coil comprises a Winding Pack (WP) composed of 7 Double Pancake (DP) modules stacked together, impregnated and inserted into a stainless steel coil case. 10 TF coils are being produced in Europe, under the responsibility of Fusion for Energy (the European Domestic Agency (DA)) while the remaining 9 TF coils are being produced in Japan. F4E has implemented a procurement strategy aimed to minimize costs and risks, by subdividing the procurement into three main procurement packages, each foreseeing first an R&D and a qualification phase. One procurement package is related to the construction of 70 radial plates, another to the fabrication of 10 WP and a third to the cold test and coil-case insertion of 10 WP. After 7 years of R&D and qualification activities and of industrial production, the first ITER TF coil winding pack has been completed in Europe. The test, consisting in a combination of leak and pressure drop tests and electrical tests at room temperature and at 78 K, should be completed by middle of 2017. In parallel the series production of the 10 TF coils in Europe is underway. So far, 65 (over 70) radial plates have been completed and delivered, 65 DP have been wound and heat treated and 35 Double pancakes (over 70) have been impregnated and completed. In addition 3 new winding packs are in the final phase of their construction. In this paper we will report on the main phases and results of the qualification, production and test of the first TF winding pack. In addition we will report on the status of the production and on the following phases needed for the completion of the ITER first TF coil.

### Submitters Country

spain

**Primary author:** Mr BONITO OLIVA, Alessandro (Fusion for Energy)

**Co-authors:** DEVRED, A. (ITER IO); FELIPE, A. (Iberdrola); MORENO, A. (Fusion for Energy); BELLESIA, B. (Fusion for Energy); KOSTOPOULOS, C. (Fusion for Energy); BARBERO SOTO, E. (Fusion for Energy); BOTER REBOLLO, E. (Fusion for Energy); THYSSEN, E. (BNG); VILADIU, E. (Fusion for Energy); CABALLERO, J. (Fusion for Energy); CORNELLA, J. (Fusion for Energy); LUCAS, J. (Elytt); SILVA RIBEIRO, J. (CNIM); LIBENS, K. (Fusion for Energy); PONCET, L. (Fusion for Energy); CASAS LINO, M. (Fusion for Energy); CORNELIS, M. (Fusion for Energy); DAMONE, M. (Fusion for Energy); JIMENEZ, M. (Fusion for Energy); MITCHEL, N. (ITER IO); PELLICER, N. (Fusion for Energy); VALLE, N. (ASG); DORMICCHI, O. (ASG); MALPICA, O. (Fusion for Energy); APRILI, P. (Fusion for Energy); BARBERO, P. (SIMIC); BATISTA, R. (Fusion for Energy); FRANCONI, R. (SIMIC); HARRISON, R. (Fusion for Energy); KOCZOROWSKI, S. (ITER IO); TARRAGO, S. (Fusion for Energy)

**Presenter:** Mr BONITO OLIVA, Alessandro (Fusion for Energy)

**Session Classification:** Tue-Mo-Or13

**Track Classification:** B1 - Superconducting Magnets for Fusion