



**MT 26**  
**International Conference**  
**on Magnet Technology**  
Vancouver, Canada | 2019

Contribution ID: 787

Type: **Poster Presentation**

## **Mon-Mo-Po1.04-02 [36]: 3D mechanical Analysis of the Block-coil Dipole option for the future Circular Collider**

*Monday, 23 September 2019 09:15 (2 hours)*

This paper presents a 3D mechanical analysis study of the mechanical behaviour of the complete magnet structure of the Block-coil Dipole option for the future Circular Collider. The analysis includes three steps: (i) pre-loading with bladders and keys, (ii) cooling down from room to operating temperature, (iii) energization at operating temperature. The main objective of the 3D optimization is to contain the large electromagnetic forces, both in the straight section and in the coil ends. The optimization must guarantee that the stress level in the coil and in each component of the structure remains lower than the allowable values at each loading step. The magnet design in the straight section has been optimized and validated previously using a 2D model. A 3D model is then required to optimize the coil ends and the longitudinal support. This study was performed in the framework of the EuroCircol project.

**Primary authors:** Mr PES, Chhon (CEA); Mr LORIN, Clement (CEA); Mrs DURANTE, Maria (CEA); Mr SEGRETI, Michel (CEA)

**Presenter:** Mr PES, Chhon (CEA)

**Session Classification:** Mon-Mo-Po1.04 - High Field Magnets for Future Colliders