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## **Wed-Af-Po3.21-11 [77]: Impact of transverse compression on the sub-element RRP Nb<sub>3</sub>Sn strand**

*Wednesday 25 September 2019 14:00 (2 hours)*

For developing 14 Tesla whole body superconducting magnetic resonance imaging (MRI) magnet, a new kind of composite conductor has been preliminary designed. In current design, a structure of Nb<sub>3</sub>Sn Rutherford cable-in-channel (RIC) conductor is adopted which is similar to Iseult 11.7T MRI conductor. The composite conductor consists of Rutherford cable and cooper stabilizer with channel. Developing Rutherford cable techniques for composite conductor with High-Jc Nb<sub>3</sub>Sn strand is important, and a key issue is control the strand deformation. During cabling, the strand would experience plastic deformation under transverse compression, which causes sub-elements damage and degrades the transport performance and residual resistivity ratio (RRR). In this paper, the impact of transverse compression on the sub-element RRP Nb<sub>3</sub>Sn strand before heat treatment was studied with finite element model (FEM) and experiments, the FEM results and experiment results are compared and analyzed.

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