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## **Wed-Mo-Po3.07-03 [45]: Measurement and Analysis on Local Magnetization Properties of RE-123 Coated Conductor with DC Transport Current and External Magnetic Field**

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Magnetization of RE-123 coated conductor influences the spatial homogeneity and time variation of the magnetic field of a magnet. This has been an important issue for the realization of MRI, NMR and accelerator comprising the coated conductor. Therefore, the measurement and modelling of the magnetization of the coated conductor is crucial for the quantitative estimation of its influence on a magnet. However, the magnetization of the coated conductor is usually measured and analyzed as a global value; then it is difficult to clarify the local electromagnetic behavior governing such a global performance. Furthermore, such behavior should be investigated under the condition where both DC transport current and external magnetic field are applied simultaneously. In this study, local electromagnetic behavior was visualized by the scanning Hall-probe microscopy (SHPM). Taking account of the behavior, it was successfully reconstructed by a numerical analysis based on finite element method (FEM) including the local magnetization and its time variation depending both on DC transport current and on external magnetic field. This will contribute to the quantitative estimation and a solution for the magnetization problem of the magnets comprising RE-123 coated conductors.

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**Authors:** Dr HIGASHIKAWA, Kohei (Kyushu University); Mr NUMATA, Naohiro (Kyushu University); Mr HISAJIMA, Kohei (Kyushu University); Dr SUZUKI, Takumi (Kyushu University); Prof. KISS, Takanobu (Kyushu University)

**Presenter:** Dr HIGASHIKAWA, Kohei (Kyushu University)

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