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M1Or1A-01 [Invited]: Recent progress in SuNAM's coated conductor development

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SuNAM's RCE-DR (Reactive Co-Evaporation by Deposition and Reaction) process has been proved to be a high-throughput, cost-effective production method for the deposition of superconducting layer for coated conductor(CC). We showed that higher than 1 kA/cm-width critical current tape can be produced routinely, though our standard product comes with 700-800 A/12 mm-width only because we care for overall process optimization.

We improved in-field critical current of our tapes by i) optimization of intrinsic pinning of RE₂O₃ by the control of starting composition and/or process temperature and gas pressure, ii) mixture of RE materials such as Gd, Y, Sm, etc. The results are very promising in mid-field of upto 10 T and our current effort is on extending to a higher field.

In addition to our catalog of high-field magnets of 26.4 T(highest field achieved with HTS at that time) and 18 T(the first commercial high-field HTS magnet to our knowledge), we succeeded in developing highly homogeneous 9.4-T mangle for 400 MHz NMR.

SuNAM's recent activities, in addition to the above mentioned ones, will be presented.

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