

Recent Developments in 2G HTS Coil Technology

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Abstract—Recent developments in 2G HTS coil technology are presented highlighting the ability of 2G HTS wire to function under difficult operating conditions without degradation. The challenges of use in various coil constructions and applications are discussed. Several applications where the conductor is subjected to high stress levels include high field insert coils and rotating machinery. While these applications present different challenges, the ability of the conductor to operate under high stress levels has been demonstrated in both direct sample measurement and test coils. The high winding current density that is available with SuperPower's thin 2G HTS wire was utilized in a high field insert coil demonstration generating central fields in excess of 26.8 T [1]. The ability of the wire to be tailored (stabilization, insulation, ac losses) to fit various operating parameters will also be discussed.

Index Terms—High-temperature superconductors, Magnetic field, Stress control, Superconducting coils

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