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Tue-Mo-Po2.10-09 [81]: The study of quench behavior of REBCO cables under different twist pitch and perpendicular magnetic field

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Due to high flexibilities and high critical current densities, the conductor on round core cable wound with REBCO coated conductors are currently being developed for the next generation of high field magnets. One of the primary challenges in the development of REBCO cable is quench protection, as the cable is prone to be burned out once the quench initiates. However, quench study of REBCO cables under different twist pitch and perpendicular magnetic field has been rarely reported. In this work, a heater is placed in the central zone on the surface of the cable, which allows pulses of various powers and durations to be generated. Combined with temperature and voltage detection, the influence of twist pitch and the number of tape layers on critical current and quench propagation will be measured at 77K in a liquid nitrogen bath. The results will provide important reference for the design of REBCO cable.

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