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## **Mon-Mo-Po1.01-06 [5]: Voltage Signal rate change of Quench Detection by Real-Time Least squares for HTS Tape and Coil**

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The quenching of superconducting magnets is one of the key issues affecting the safe and stable operation of superconducting devices. The effect of Magnetic flux jump and electro-magnetic stress leads to local critical current drop, continuous accumulation of heat of joint resistance, failure of refrigeration equipment or other auxiliary equipment, etc. These effects may cause quenching of the superconducting magnet. When the superconducting magnet is quenching, it will cause the point of overheating. When the quenching is continued, the localization will continue to heat up. Therefore, the establishment of the automatic quench protection system and the correction of the quenching judgment are important for the long-term stable operation of the superconducting device. In poor electromagnetic environment, quench detection based on electrometric method is easily interfered by noise and severely disrupted quench signal may cause wrong quench determination and malfunction of quench protection, thereby resulting in unnecessary loss. Because of the noise cannot be completely eliminated, in order to effectively judge the quench and reduce the malfunction of the annihilation detection, a real-time least squares method is proposed.

The overcurrent experiment shows that the real-time least squares method can effectively judge the point of quench.

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