Contribution ID: **91** Type: **Poster Presentation**

The development of μs-class response speed and high-current Rogowski coil.

Monday 4 June 2018 13:30 (1h 30m)

Aiming at the μs-class response speed and the requirement of pulsed high-current test of the ampere-level current amplitude, a mathematical model of self-integrating Rogowski coil was established. The amplitude-frequency characteristic of self-integrating Rogowski coil was analyzed. The influence of magnetic core material, the structural parameters and electromagnetic parameters can be researched. The Rogowski coil was made which can measure the μs-class response speed and the pulsed high-current test of the ampere-level current amplitude. According to the performance evaluation of Rogowski coil, a Rogowski coil performance parameter test platform was set up, and the Rogowski coil performance parameters were checked. Finally, the calibration factor of Rogowski coil was 499.4A / V, which can accurately measure the rise time greater than 2.6μs, Current amplitude up to kA pulse high current.

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Session Classification: Poster 1 - Dielectrics and Electromagnetic Phenomena