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Effect of Twisting Characteristics on Critical Current of Bi-2212 superconducting wire

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China Fusion Engineering Experimental Reactor (CFETR) is a major scientific project independently designed and developed by China and jointly with international cooperation. Engineering design and project infrastructure construction are currently underway. The design goal of CFETR is 1.5-2.0 GW fusion power, and the central magnetic field is up to 17 Tesla, which is much larger than the design parameters of ITER under construction in Europe. In order to achieve the desired high magnetic field, the pre-research of Bi2212 high temperature superconducting CICC magnet was carried out in the Institute of Plasma, Chinese Academy of Sciences. The Bi-2212 superconducting wire undergoes twisting and untwisting operations during the stranding of the cable. In order to study the performance changes of Bi-2212 during torsion and untwisting, twisting experiments with various angles were designed and tested and analyzed. It can be seen from the test results that there is no significant change in the heat treatment performance of the Bi-2212 superconducting wire after torsion. The Bi-2212 superconducting wire before heat treatment is not sensitive to torsion deformation.

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