



Contribution ID: 456

Type: **Invited Oral**

M2Or3H-05: [Invited] Compressive bending property of BSCCO tapes

Tuesday 11 July 2023 17:35 (20 minutes)

BSCCO and REBCO tapes have a rectangular cross section, making them suitable for coil applications and power transmission cables. In short, the advantage is that it is easy to bend, but strain due to bending is inevitable. and in BSCCO there is a difference in strength between the two. Compression test results with a bending jig showed that it was more susceptible to compressive strain than tensile strain.

To understand these behaviors, compressive strain tests and bending tests were conducted. Specifically, critical current measurements were made while performing compression tests using a curved beam called a Spring Board and bending tests using cylinders with multiple diameters. In BSCCO tapes, where the filament geometry is complex, it is difficult to visualize the compression fracture. Therefore, we also performed diffraction experiments using synchrotron radiation with high-brilliance X-rays, which can evaluate internal bending strain nondestructively.

We want to show that by understanding the strength on the compression side, we can relate the degradation due to compressive strain from bending.

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Session Classification: M2Or3H: Special Session: Electromechanical Behaviors of HTS Conductors for Applications - Part II