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**AC losses in multifilamentary YBCO thin films** RAN YANG, ANDREA LUCARELLI, GUNTER LUEPKE, College of William and Mary, TIMOTHY HAUGAN, PAUL BARNES, AFRL Propulsion Directorate — Striation of superconducting tape allows the reduction of hysteresis losses. We studied the effect of an ac current as a function of the frequency and of a static magnetic field on the flux behavior in ultifilamentary $YBa_2Cu_3O_{7-x}$ (YBCO) thin films. The current density, the magnetic and electric field profiles are determined quantitatively during the cycle. The shielding and transport current distribution in the filaments are affected by hysteresis and inductive effects that depend on the number and the distribution of the filaments. Time resolved magneto-optical imaging measurements reveal a cross-talk between adjacent conducting filaments that affects the overall hysteresis losses. This new, quantitative and fast method allows us to determine a of dynamic parameters, such as mapping the transport current density and electric field distribution during the ac cycle, that are important for practical superconducting applications and complementary to conventional transport measurement techniques.

Andrea Lucarelli
College of William and Mary

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