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**Irradiation of commercial, high-Tc superconducting tape for potential fusion applications: electromagnetic transport properties**[1] A.A. GAPUD, N.T. GREENWOOD[2], J.A. ALEXANDER[3], A. KHAN, University of South Alabama, K.J. LEONARD, T. AYTUG, F.A. LIST III, Oak Ridge National Laboratory, M.W. RUPICH, American Superconductor Corporation, Y. ZHANG, University of Tennessee — Effects of low dose ion irradiation on the electrical transport current properties of commercially available high-temperature superconducting, coated-conductor tapes were investigated, in view of potential applications in the irradiative environment of fusion reactors. Three different tapes, each with unique as-grown flux-pinning structures, were irradiated with Au and Ni ions at energies that provide a range of damage effects, with accumulated damage levels near that expected for conductors in a fusion reactor environment. Measurements using transport current determined pre- and post-irradiation resistivity, critical current density, and pinning force density, yielding critical temperatures, irreversibility lines, and inferred vortex creep rates. Results show that, at the irradiation damage levels tested, any detriment to as-grown pre-irradiation properties is modest; indeed in one case already-superior pinning forces are enhanced, leading to higher critical currents.

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