

## A Public Database of High-Temperature Superconductor Critical Current Data

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**Abstract**—One of the major impediments to the industrial take-up of high-temperature superconductors is the paucity of comprehensive, reliable and relevant performance data on commercially available wires. To address this, the Robinson Research Institute is making available its internal database of wire performance data, acquired on our in-house 1 kA critical current measurement system. The database is freely accessible via the worldwide web at [https://figshare.com/collections/A\\_high\\_temperature\\_superconducting HTS\\_wire\\_critical\\_current\\_database/2861821](https://figshare.com/collections/A_high_temperature_superconducting HTS_wire_critical_current_database/2861821) and allows download of both graphical images of the data as well as the underlying data files. The database will continue to be expanded into the future, and submissions of commercially available wires for independent characterization and inclusion are invited. We demonstrate the utility of this data in terms of a case study on the design of our 1.5 T 2G HTS MRI system and by outlining a comparison of correlations between low-temperature and 77 K performance across 2G HTS wires sourced from different manufacturers that demonstrates that this is useful only for wires of a particular type produced under similar conditions (for example, several batches produced using the same process). These examples highlight the need for complete characterization of different wires under the operating conditions of interest.

**Keywords (Index Terms)**— Critical currents, flux pinning, high-temperature superconductors, superconducting device engineering.

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