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Thu-Mo-Or16-05: A Database-Tool for Storage and Analysis of Magnet Parameters and Test Results

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In recent years, several Nb3Sn high field magnet prototypes have been designed and tested in preparation for the LHC Luminosity upgrade and also for the potential Future Circular Collider (FCC). We present a Microsoft Excel -based database tool for storing magnet design parameters and the results of the magnet tests. The hierarchical, yet flexible, structure of the relational database allows for systematic and coherent analysis of the test data from different magnet assemblies, and works as a practical reference for different magnet designs. The database is accessed via an intuitive user-interface, which features several useful functions for data input, analysis, and visualization. We demonstrate the tool usefulness in analysis of results from quench protection heater delay measurements in several high-field Nb3Sn magnet prototypes. We use the data also to validate the simulation assumptions used in the design of the EuroCirCol FCC 16 T dipole magnets.

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