

Abstract Submitted  
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**Design and Optimization of Force-Reduced Superconducting Magnets** SZABOLCS REMBECZKI, Florida Institute of Technology — Superconducting magnet design and development has particular significance in physics not only in the area of research, but also due to the extensive interest in civil and military applications. Due to the complexity of the superconducting magnets, detailed analytical methods are needed during their design and construction. One of the main problems in high-field superconducting magnets is the presence of huge electromagnetic stresses that must be counteracted by heavy support structures. Different force-free magnet concepts have been studied both numerically and analytically to solve this problem. In this research I propose to design and optimize a high-field, low weight superconducting magnet using force-reduced coil configuration.

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