

Abstract Submitted  
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**Magnet Support Shielding for T4B** SARAH GUCKER, FRANS EBERSOHN, GABRIEL FONT, THOMAS MCGUIRE, ARTAN QERUSHI, SAMUEL SCOTT, JONATHON HEINRICH, Lockheed Martin Corporation — The linear encapsulated ring cusp topology of Lockheed Martin’s Compact Fusion Reactor (CFR) concept requires electromagnetic field coils internal to the plasma. These coils have supports that pass through the confined plasma volume. To reduce plasma losses and protect the coil supports, we are pursuing magnetic guarding. While magnetic guarding can invariably reduce plasma losses directly to supports, magnetic guard fields introduce cross-field plasma drifts (predominately grad B drifts). Depending on the ratio of the guard field to background magnetic field, these drifts can be negligible or become dominant loss mechanisms. As part of the T4B experimental campaign, various forms of magnetic guarding have been investigated. We present the experimental results for prototype magnetically guarded supports and demonstrate total plasma loss reduction due to the supports of greater than 55% in comparison with unshielded supports. ©2019 Lockheed Martin Corporation. All Rights Reserved.

Frans Ebersohn  
Lockheed Martin Corporation

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