Disruption Analysis

Module 18

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Presented on the VLT Call

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company,
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Summary

- Both ITER disruption cases completed (18 ms exponential and 40 ms linear)
- Model includes:
  - Vessel (upper, midplane and divertor ports)
  - Module 18 and 17 (two modules each 20 deg.)
  - Divertor (three modules 20 deg.)
  - Lower triangular support
- Just a few examples of the results are shown

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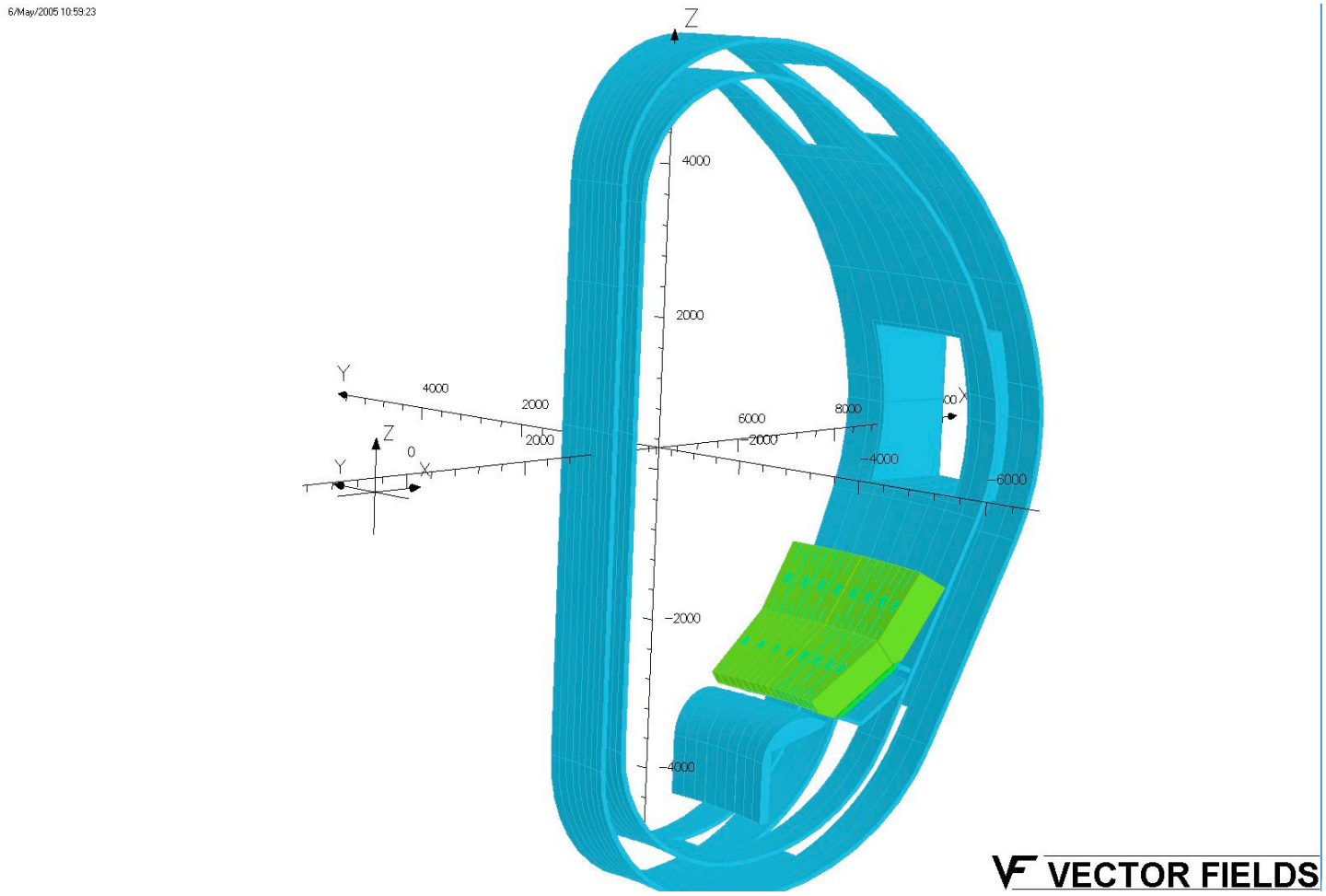
Vessel, Shield and Divertor



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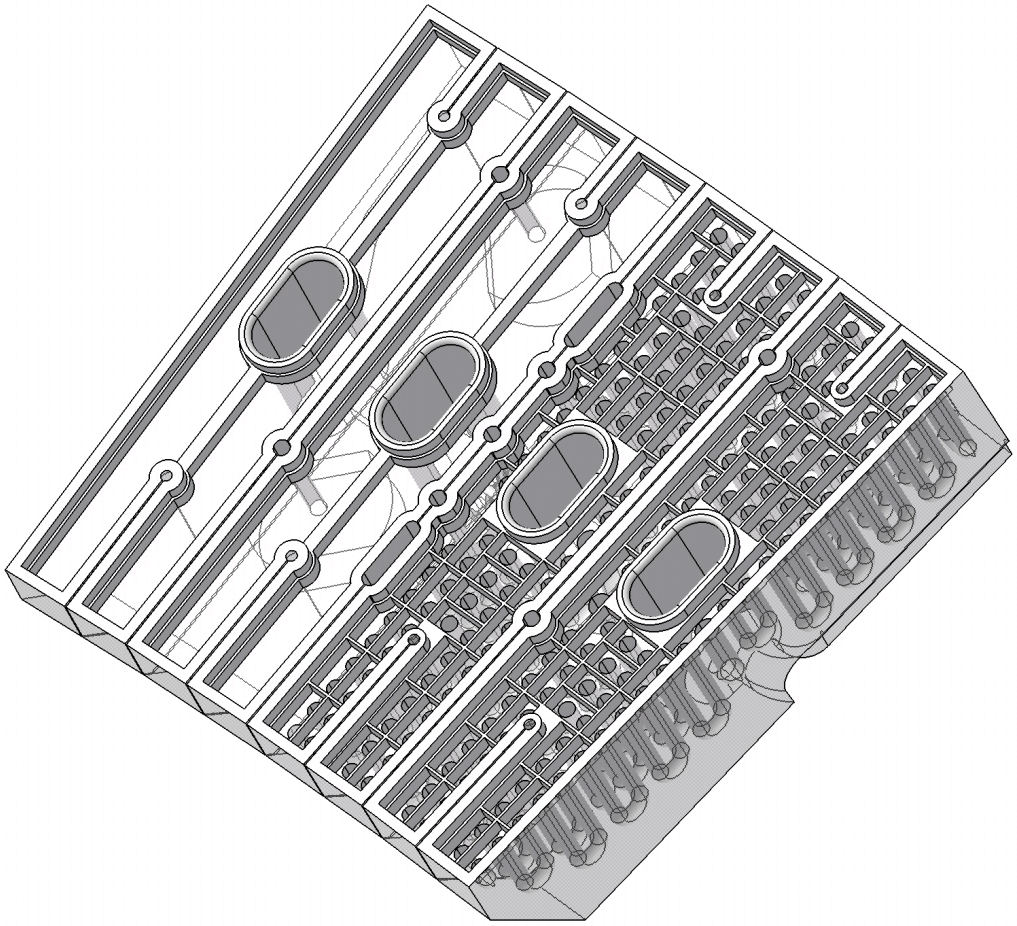
Shield-layout



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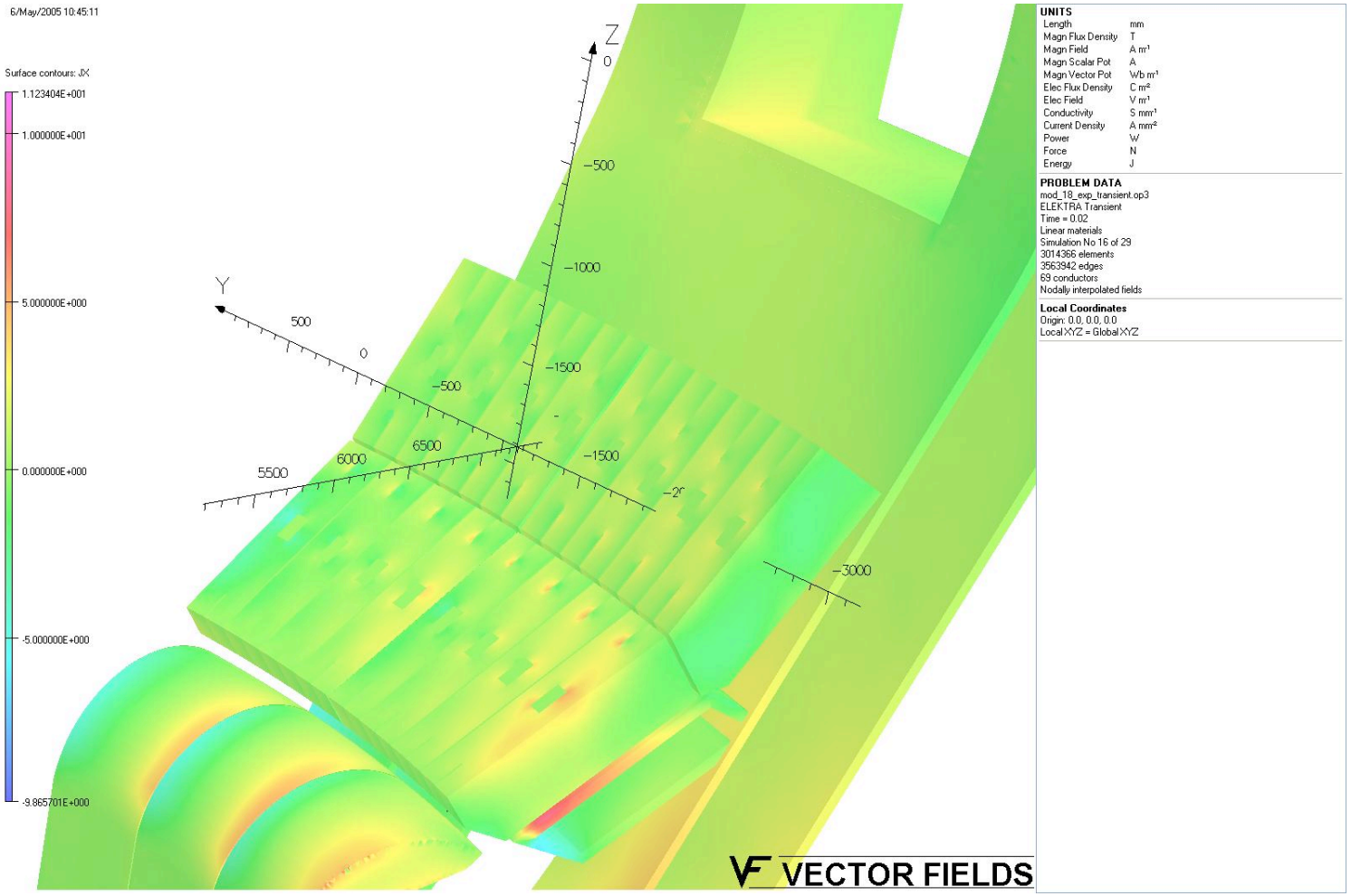
Shield Current (Preliminary)



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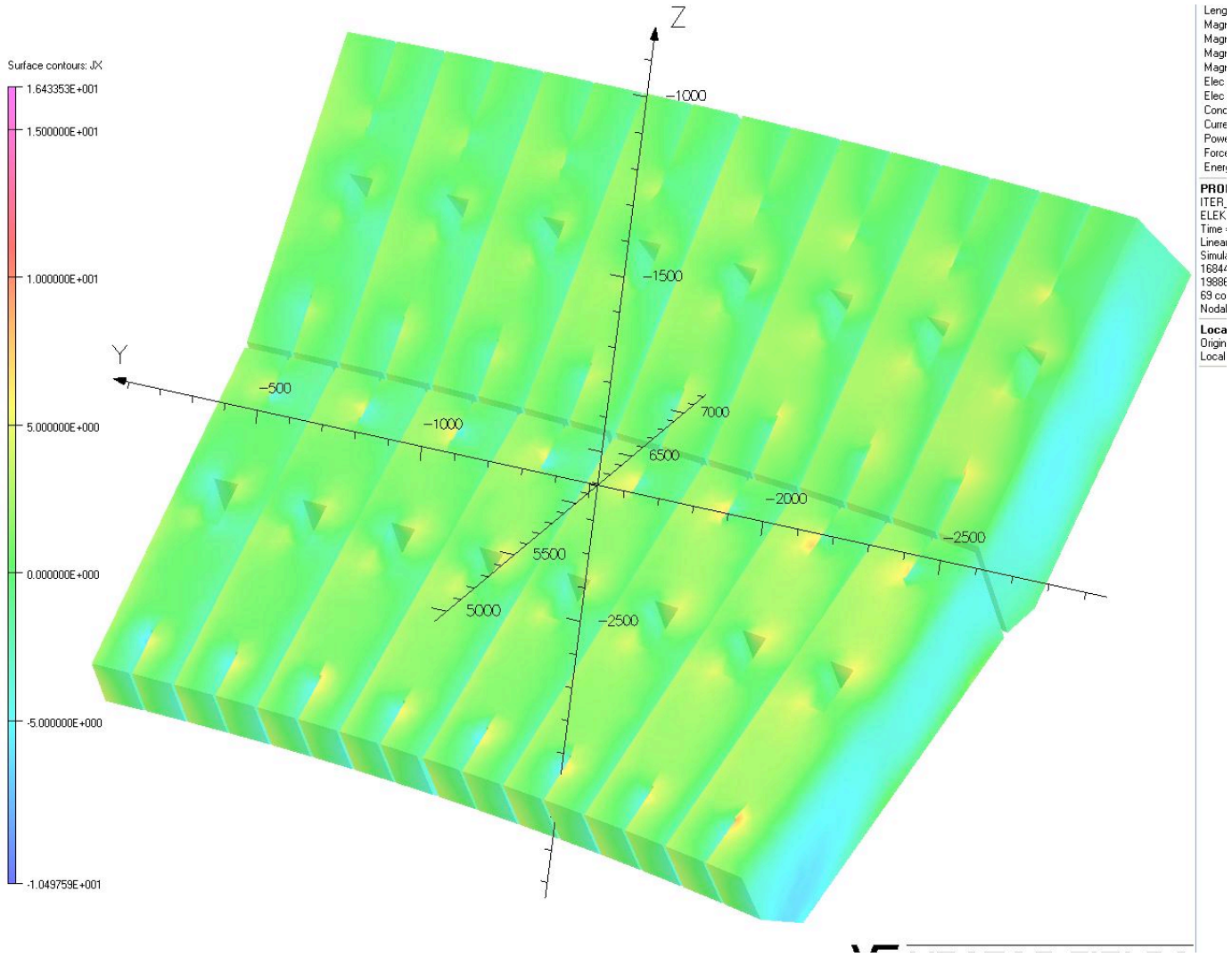
Radial Current Density



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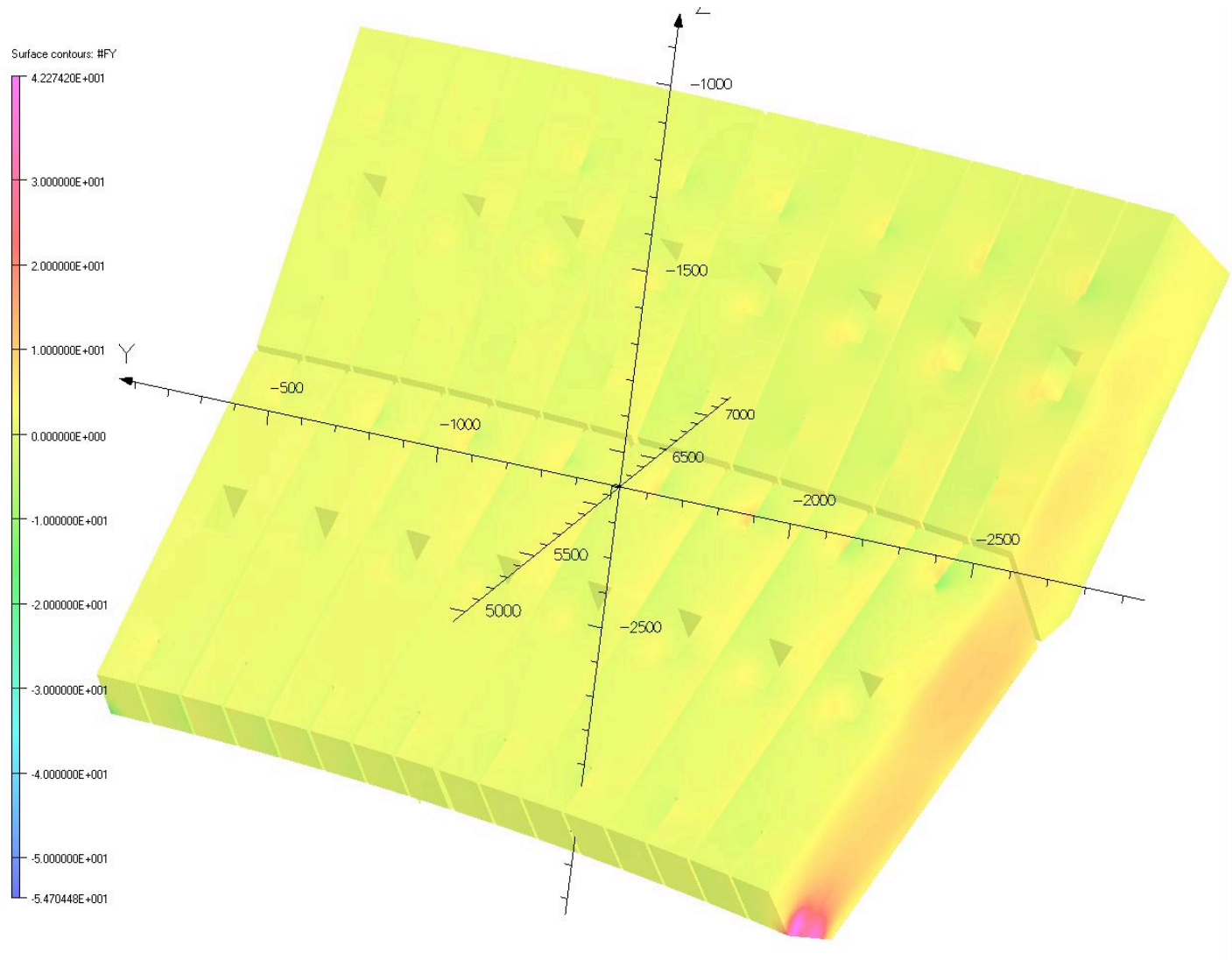
Toroidal Current Density



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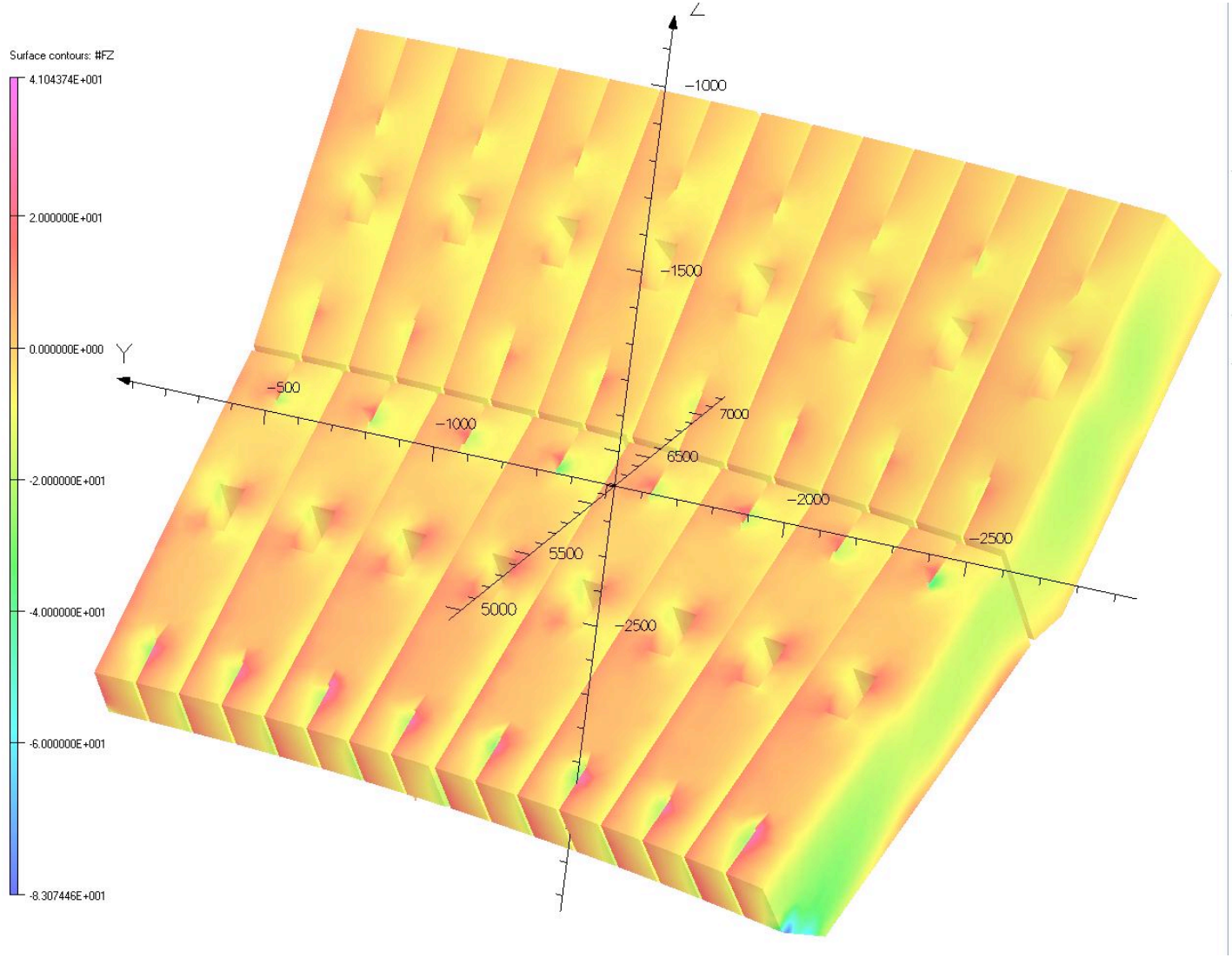
Vertical Force Density (JXB)



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First Wall Disruption Response

- The first wall is very finely cut to reduce eddy currents in the copper heat sink layer
- Both disruption cases have been calculated
- The forces in the first wall are less than those in the shield
- Halo currents have also been simulated in the First Wall
- Halo currents can lift the fingers of the FW off the shield module

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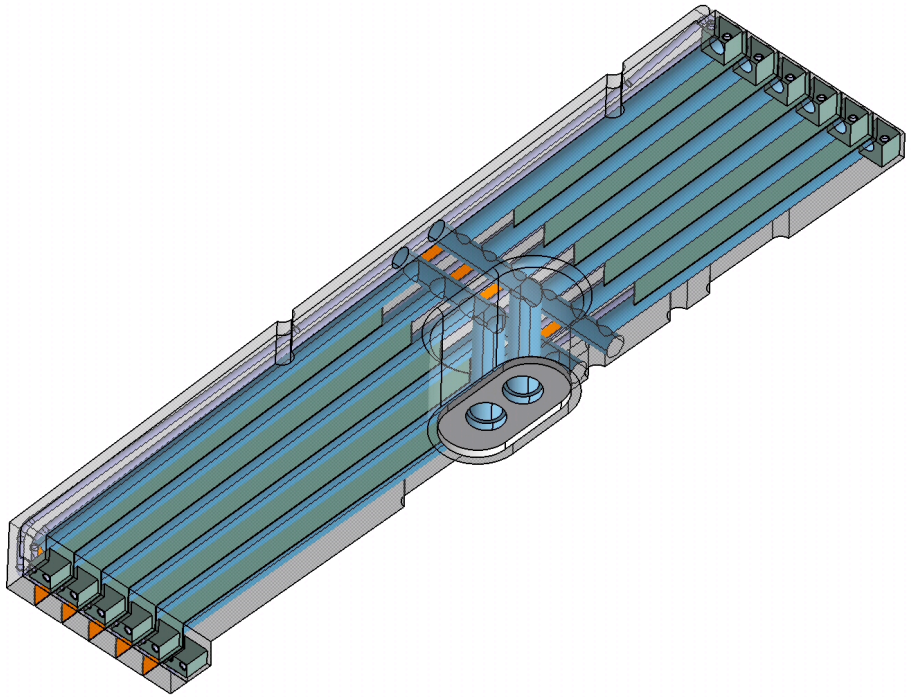
First Wall layout



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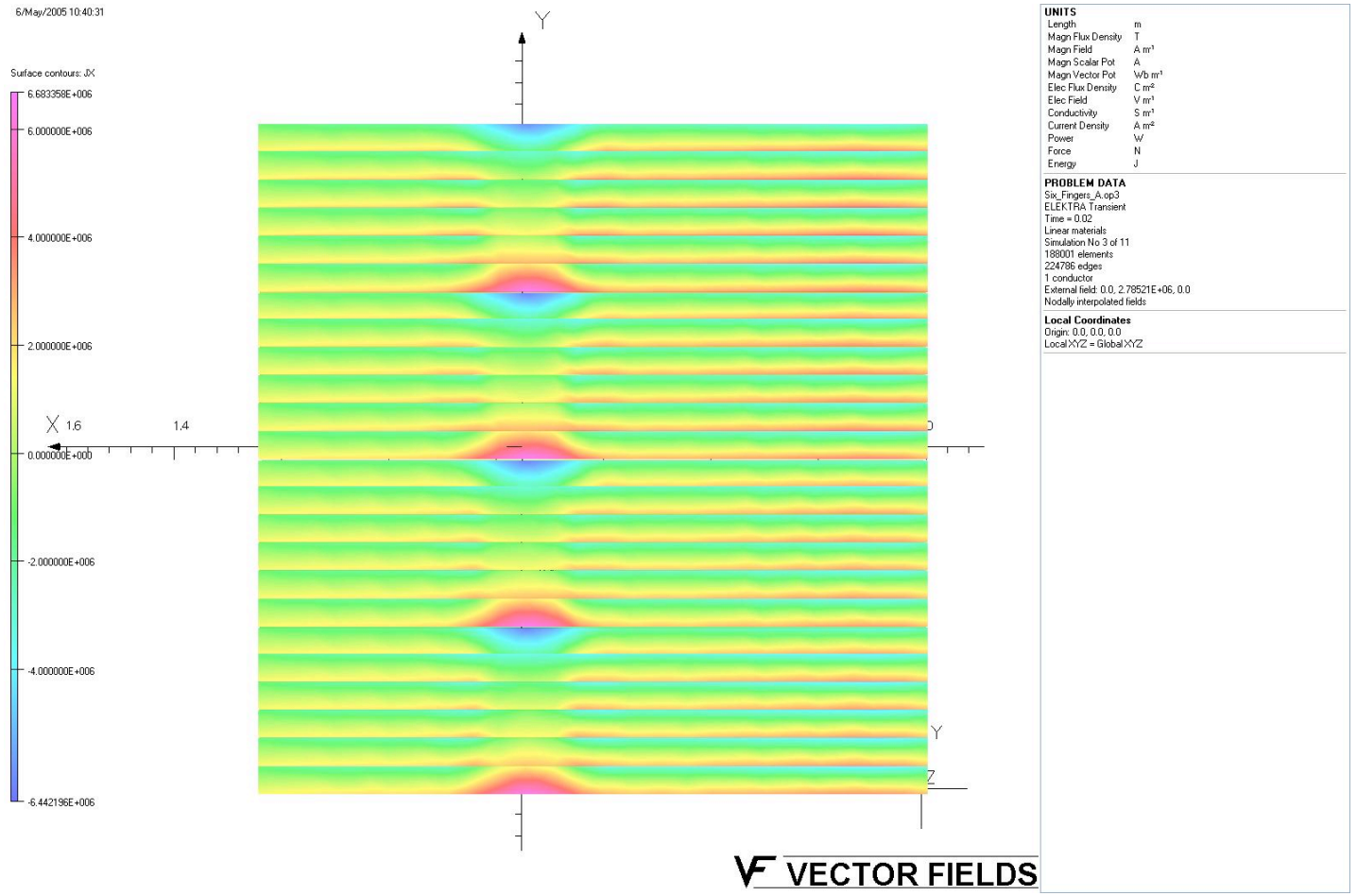
Disruption Current in the First Wall



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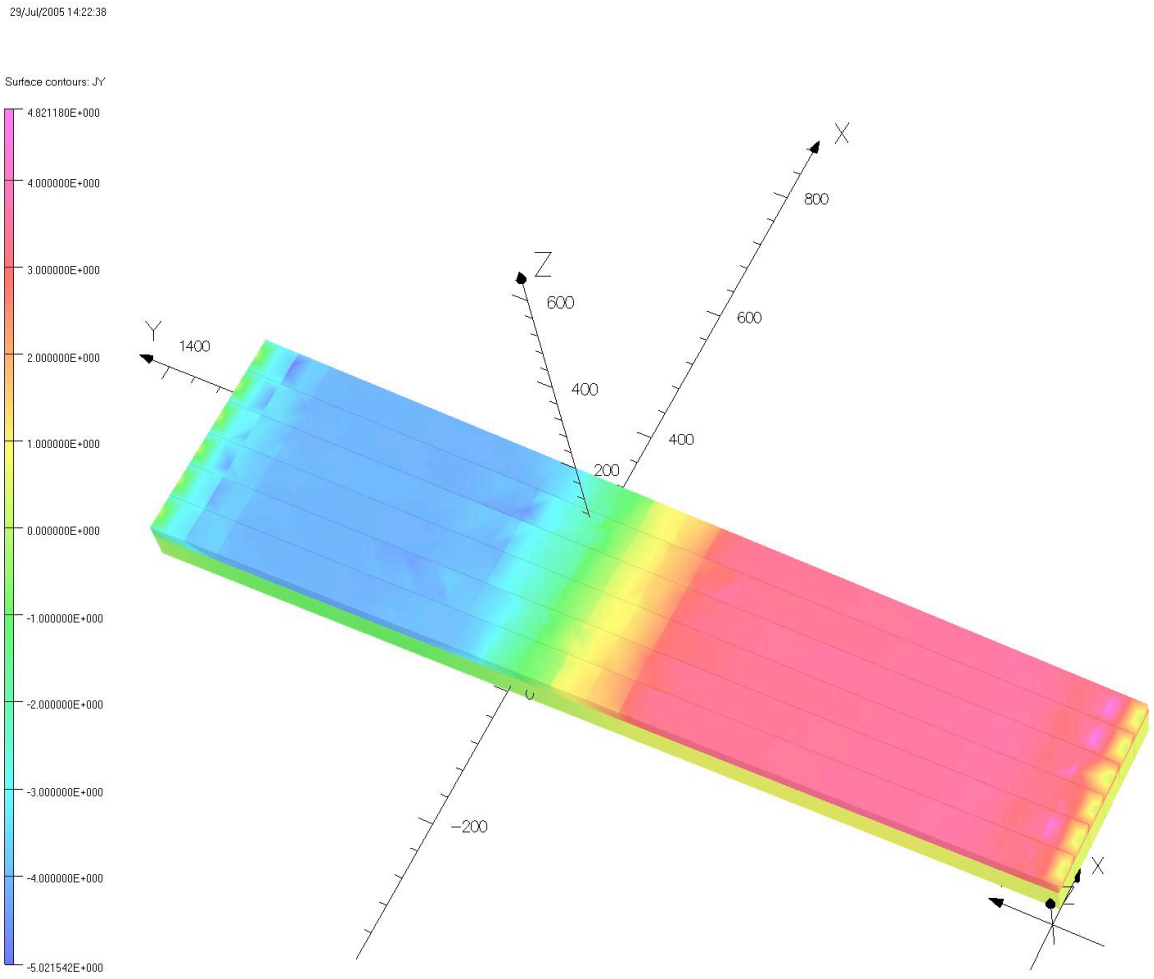
Halo Current Flow In The First Wall



VECTOR FIELDS

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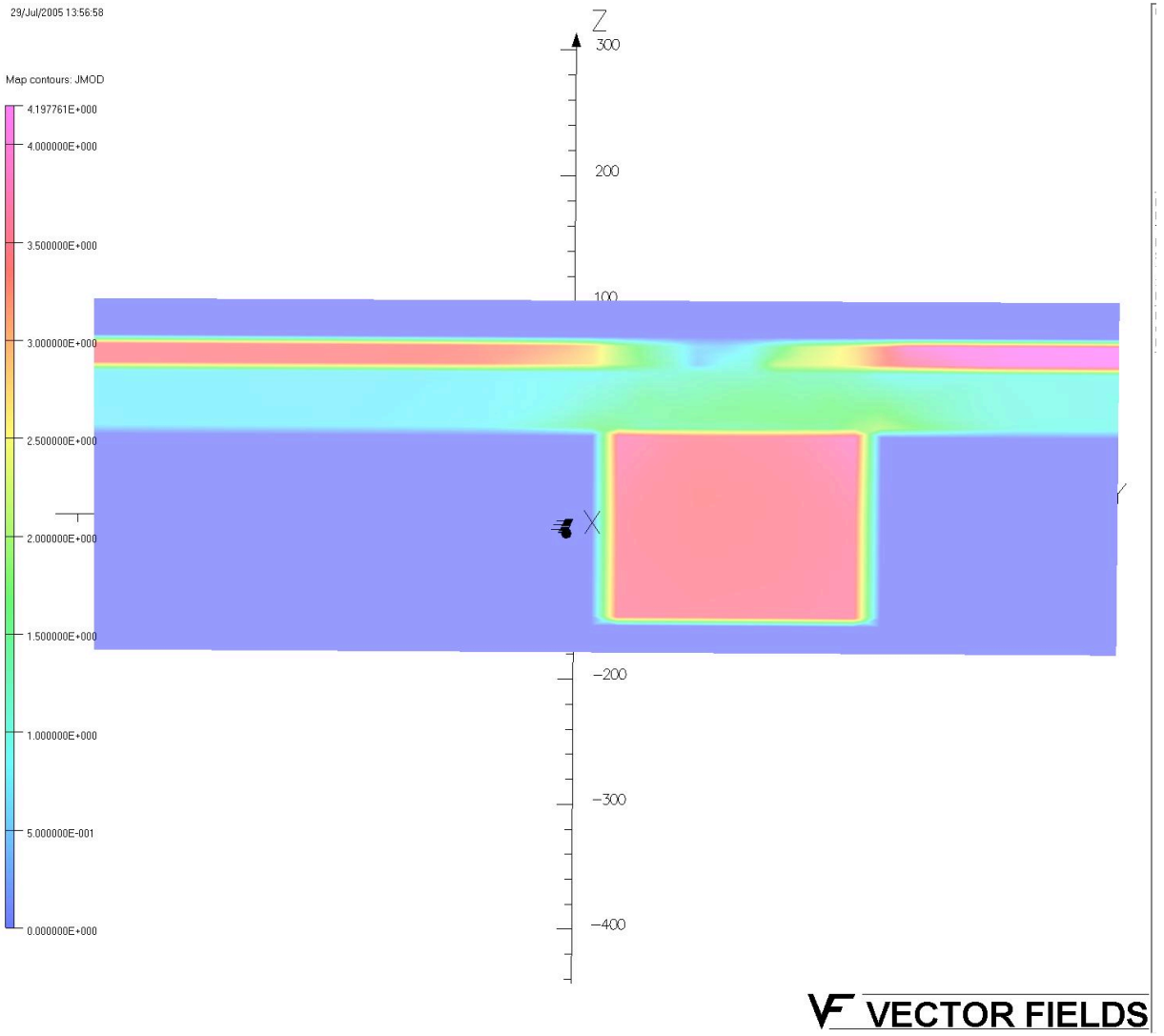
Halo Currents Flow Mainly in the Cu



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