



LLNL Update

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Global Design Effort



Status of LLNL program

- US Congress cuts funding for US ILC in FY08 to 25% of request, 50% of FY07
 - **No FY08 funding for LLNL ILC program.**
 - **Was supposed to be 3 FTE for positron source**
 - **Perhaps some support in FY09**
- Spending out available funds to support Daresbury positron target prototype this year



Work Areas

- Support for the spinning target experiment at Daresbury – as funds are available
 - **Rotational and vibrational studies**
 - **Mechanical stresses**
 - **Guarding of spinning target**
 - **Eddy currents**
- Design and simulation of positron source target
 - **Mechanical simulations**
 - **Radiation damage study**



Experimental Support

- Collaborating with Daresbury Laboratory on the rotating target prototype as funds are available
 - RAL's numbers for stresses in rotating wheel agree with LLNL calculations
 - Design of experimental enclosure
 - Help with analysis of experimental results
 - Validate vibrational calculations
 - Validate Eddy current simulations



Design and Simulation of Target

- Single pulse simulations of target show favorable results
- Further simulation needs:
 - **Simulating a 'unit cell' of pulses to show repeatability over time**
 - **Simulation of single pulse using different code with a slightly different formulation**
 - **Simulation of varying cooling scenarios**
 - **Simulation look at multi-phase effects in Ti6Al4V**
- Further design needs
 - **Evaluation of material property changes due to thermal cycling/fatigue, as well as radiation damage**
 - **Evaluation of water feed-throughs and allowable pressure drops to raise heat transfer to cooling water**



Radiation Damage Study

- Brian Wirth completed study of radiation damage effects in target material
 - **After reformulating the results, damage is much lower-0.1 dpa/year in Ti6Al4V**
 - **Discrepancies with previous calculations identified**
- However, material property changes-increasing strength with loss of ductility need to be considered