

Abstract Submitted  
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**Thermal Load Optimization of "Spherical" Targets in Neutrino Oscillation Experiment** RYAN GOODE, Chicago State Univ, HIGH ENERGY TARGET GROUP ACCELERATOR DIVISION AT FERMILAB TEAM — The Long Baseline Neutrino Facility (LBNF, formerly the Long Baseline Neutrino Experiment) is a next generation neutrino oscillation experiment, with primary objectives to search for CP violation in the leptonic sector, to determine the neutrino mass hierarchy and to provide a precise measurement of  $\theta_{23}$ . The facility will generate a neutrino beam at Fermilab by the interaction of a proton beam with a target material, which must dissipate the c.20 kW heat load that will be deposited at the ultimate anticipated proton beam power of 2.3 MW. Currently various cooling schemes are implemented to alleviate these thermal loads and to ensure the health of the target. A fully optimized target could enable higher-power neutrino beams where there is, at present, no demonstrably survivable target. Furthermore, this type of target could increase the yield of usable neutrinos from a given beam power by allowing smaller proton beam sizes and more efficient focusing through the horn systems.

Ryan Goode  
Chicago State Univ

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