Abstract Submitted
for the APR08 Meeting of
The American Physical Society

Metal Loaded Organic Liquid Scintillator for the LENS Experiment[1] STEVEN DEREK ROUNTREE, Virginia Tech, ZHENG CHANG, South Carolina State University, MINFANG YEH, RICHARD HAHN, Brookhaven National Laboratory, RAJU RAGHAVAN, Virginia Tech, LENS COLLABORATION[2] — LENS is a low energy neutrino experiment that will measure the solar neutrino spectrum above 114keV which accounts for >95% of the solar neutrino flux. It will allow us to measure the solar luminosity in neutrinos, test the current LMA-MSW oscillation model independently from solar models, probe the temperature profile of solar energy production, as well as search for sterile neutrino oscillations using an artificial neutrino source. The experimental tool is charged-current capture of the neutrino on In115, with prompt emission of an e- and delayed emission of 2 gamma rays that serve as a time/space coincidence tag. LENS requires ∼10 tons of Indium be loaded into 100,000 liters of organic scintillator (pseudocumene, linear alkylbenzene) via liquid-liquid extraction. Results of several years of development will be described. The key properties of the Indium scintillator are: high metal loading (8-10%), long attenuation length at 430nm (>8m), high scintillation yield, stability on the scale of years.

[1]This work was funded in part by NSF and DOE.
[2]Low Energy Neutrino Spectroscopy

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Date submitted: 11 Jan 2008 Electronic form version 1.4