Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Indium-loaded Liquid Scintillator for the Low Energy Neutrino Spectrometer (LENS)[1] LIANGMING HU, Virginia Tech, SUNEJ HANS, RICHARD ROSERO, WANDA BERIGUETE, WAI TING CHAN, JAMES CUMMING, MINFANG YEH, Brookhaven National Lab, DEREK ROUNDTREE, BRUCE VOGELAAR, Virginia Tech, VIRGINIA TECH COLLABORATION —
The Chemistry Department at Brookhaven National Laboratory has a long history of neutrino research since Ray Davis's Homestake experiment. The Solar Neutrino and Nuclear Chemistry group has been successfully building large neutrino detectors over the past decade for various physics experiments, using tens to hundreds of tons of liquid scintillator. Among them, LENS aims to use 8% indium-loaded LS (In-LS, first investigated by Raghavan in the 1970s) for a real-time measurement of over 95% of sub-MeV solar neutrinos, mainly from pp-, CNO-, and ^{7}Be-processes. A nearly background-free spectral image from neutrino interactions on ^{115}In can be obtained via a triple coincidence tag in space and time. LENS detector R&D has made major progress in the recent years. The development of In-LS, in collaboration with Virginia Tech, now meets the challenging requirements of light yield, optical clarity, and chemical stability; and the collaboration is in the process of building a 410-L prototype (*mini*LENS). In this talk, the preparation and properties of In-LS for the *mini*LENS detector will be presented.

[1]Research sponsored by the U.S. Department of Energy, Office of Nuclear Physics and Office of High Energy Physics, under contract with Brookhaven National Laboratory-Brookhaven Science Association.

Minfang Yeh
Brookhaven National Lab

Date submitted: 05 Jan 2012 Electronic form version 1.4