neutrino physics. Clearly a new experiment is needed which is capable of observing the neutrinos from the H + H reaction or its electron capture branch (PeP). The flux of these neutrinos are forecast with great confidence by the current theories.

V. A. Kuzmin[14] pointed out that the reaction $^{71}Ga\ (\nu,e^-)^{71}Ge$ with its low threshold and favorable cross-section could be used to measure the abundant H-H neutrinos. For such an experiment chemical separation techniques exist that can be used, the counting of ^{71}Ge is relatively easy, and various background effects are small. The major difficulty is obtaining about 50 tons of gallium for the experiment. The possibility of using the super-allowed neutrino capture reaction $^{7}Li(\nu,e^-)^{7}Be$ has been discussed for many years. There are suitable chemical extraction techniques available, but the counting of ^{7}Be at rates of one per day is a difficult problem.[15] Recently Zakharov[16] has pointed out that the background from alpha emitters is a serious problem requiring that the U, Th levels should be below 5×10^{-11} g/g LiCl solution. The cosmic ray muon production of ^{7}Be from oxygen and chlorine is another serious background effect that needs evaluation. The main problems with a lithium solar neutrino detector are the counting of ^{7}Be and the background effects. The third possibility is to build a larger ^{37}Cl experiment. If an experiment were built five times larger than the present one, then a signal in the range of 1 to 2 SNU could be measured readily and the ultimate sensitivity would be sufficient to observe the 1.44-MeV neutrinos from the PeP reaction. A past worry that the background from cosmic ray produced ν_μ would be serious has been alleviated by the recent calculations of Domogatsky and Eramzhyan[17] who show that the background from these neutrinos is small. Building a ^{37}Cl experiment of this size is certainly feasible and the only technical difficulty is locating it deep enough to reduce the cosmic ray muon background (approximately 7000 m.w.e.).