



THE UNIVERSITY OF NORTH CAROLINA
AT
CHAPEL HILL

Department of
Physics and Astronomy
College of Arts and Sciences

The University of North Carolina at Chapel Hill
CB# 3255, Phillips Hall
Chapel Hill, N.C. 27599-3255
artc@physics.unc.edu

February 23, 2005

Dear Committee Member,

My area of research is experimental nuclear astrophysics and I am also the principal investigator of the nuclear physics group at UNC. The Kimballton site is very appealing from both perspectives. On the personal side, I am very interested in the possibility of building an underground accelerator facility, which is under active discussion in the nuclear physics community. Measurements of stellar cross sections are often compromised by backgrounds produced by cosmic ray interactions. By going underground and shielding against the vast majority of cosmic ray events, we greatly increase the sensitivity of these measurements. I am also very interested in the LENS neutrino spectroscopy experiment, which I view as a natural extension of our laboratory work. We have measured some of the nuclear reactions that occur in the sun. LENS will allow us to measure them *as* they occur in the sun. Kimballton is an excellent location for both projects.

As PI, I am actively involved with the evolution of our efforts in the direction of underground science, which is beginning with a new faculty line. This is part of a larger initiative that will ultimately involve researchers from Duke and NC State Universities. From this vantage point, Kimballton seems like an ideal venue. It is close enough for our group to play an active role in all phases of an experiment, which makes it more appealing for students and also provides them with better training. In addition, we could involve undergraduates in this work, which is essentially impossible at a more remote location.

In considering both science and education, it is clear to us that Kimballton is the best site for our activities. I am excited about the possibilities there and will work to help make them a reality.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "A.E. Champagne".

A.E. Champagne
Professor of
Physics and Astronomy