

INVITATION FOR LETTERS OF INTEREST

The Oak Ridge National Laboratory (ORNL) with Oak Ridge Associated Universities (ORAU) is preparing a proposal to build a national user facility for neutrino science at the Spallation Neutron Source (SNS). The facility, called the Oak Ridge Laboratory for Neutrino Detectors (ORLaND), will be an underground detector hall located adjacent to the neutron production target of the SNS. The SNS will be the most powerful stopped pion neutrino source in the world, producing $\sim 10^{15}$ neutrinos/second. This corresponds to a flux of $3 \times 10^6 \mathbf{n}_e/\text{cm}^2/\text{s}$ at a distance of 50 meters from the SNS target, with equal fluxes of \mathbf{n}_μ and $\bar{\mathbf{n}}_\mu$. The neutrinos will be produced at 60 Hz in pulses of ~ 600 ns duration. A versatile laboratory is being designed that could accommodate one large multipurpose Cerenkov detector (~ 2000 tons) and as many as eight smaller (~ 200 tons) detectors. A report, "Scientific Opportunities at the Oak Ridge Laboratory for Neutrino Detectors," describing some of the physics opportunities and providing a brief description of the facility and its cost, can be found on the ORLaND web site (<http://www.phy.ornl.gov/orland/>). A printed copy can be obtained by sending an e-mail request to A. M. McCoy at mccoyam1@ornl.gov.

ORNL has established a Facility Advisory Committee to provide guidance to the ORLaND project. The committee members are A. Baha Balantekin (Univ. of Wisconsin), Guido Drexlin (Institut für Kernphysik I, Karlsruhe, Germany), Stuart Freedman (Univ. of California at Berkeley), Gerald R. Garvey (LANL), Donald F. Geesaman (ANL), Wick C. Haxton (Univ. of Washington), William C. Louis, Chair (LANL), R. G. Hamish Robertson (Univ. of Washington). We envision a broad-based science program at ORLaND with experiments or detector development projects chosen on the basis of proposals reviewed by a Program Advisory Committee. At the present stage of facility design and development, it is not yet appropriate to issue a call for proposals. However, it is important that input from the potential user community be available to ensure that the design of the facility is commensurate with community interests. Consequently, we are asking for letters of interest from individuals or groups wishing to form detector collaborations for experiments at ORLaND. These letters will provide important guidance to the Facility Advisory Committee and the ORLaND staff.

The SNS provides a unique opportunity to build a facility for accelerator-produced medium-energy neutrino studies that will be unmatched anywhere in the world for many years to come. With the termination of LSND and the pending demise of the Karmen experiment, ORLaND will be the only facility in the world for this research. We will not have to pay any part of the construction or operation costs of the SNS. The ORLaND project has developed a good working relationship with the SNS staff. We have selected a site for the ORLaND detector hall that is compatible with our requirements and acceptable to the SNS. In order to mesh properly with the development of the SNS, the underground detector hall must be constructed during the period from FY 2004 to FY 2006. This is possible from both the technical and funding points of view. We solicit your interest, support, and help; they will be crucial to the success of the project. We look forward to receiving your letters of interest describing your research plans at ORLaND.

Technical details of the project can be obtained from the web site or from Jim Beene, (beenejr@ornl.gov, 865-574-4622).

Letters of interest should be sent to :

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