

July 1, 2002

Call for Letters of Intent
for
Nuclear and Particle Physics Experiments
at the
JAERI-KEK Joint Project on High Intensity Proton Accelerators

The JAERI-KEK Joint Project on High Intensity Proton Accelerators received its construction budget starting on April 1, 2001. It is expected that this project will be completed in JFY2006 and provide first beams in April 2007. Although it will be five years before experiments will start, the Project Team is now calling for Letters of Intent for experiments at the 50-GeV PS of this new facility. Applications from all over the world are welcome.

Scope of the Project

The approved portion (Phase 1) of the accelerator complex in this facility consists of a 400 MeV linac, a 3 GeV proton synchrotron with 1 MW beam power and a 50 GeV proton synchrotron with a beam power of 0.75 MW (15 μ A). Since the Phase 1 budget does not include a power storage device for the 50 GeV PS, the beam energy at the initial operational phase of the 50 GeV PS will be 30 GeV or at most 40 GeV. In addition, the Phase 1 budget allows only a limited number of experiments for the slow-extracted proton beams in the initial experimental hall (called the K-hall), which will be 60 m x 56 m in size. The Project Team has already started to request an additional funding for a neutrino beam line with the fast-extracted proton beams. In the subsequent year, the budget request for an extension of the above K-hall for slow-extracted beams (Phase 2) is planned. Details of the entire accelerator complex are shown in Attachment 1.

Purpose of Lol

We would like to call for Lol's at this time for the following purposes.

- 1) For the Phase 1 construction the Project Team must decide a layout of the initial K-hall reasonably soon. The present plan for the K-hall layout has one primary line and one primary-target station, and is based on the present budgetary constraints. It is described in Attachment 2 of this document. The actual design of the beamline layout, however, must be made by careful consideration of Day-1 experiments at this facility. Initial screening of the Day-1 experiments in the K-hall is the prime purpose of this call for Lol's.

- 2) The International Advisory Committee of the project recommended a neutrino program with high priority. We, thus, sent to the Government a budget proposal for a neutrino beam line. Although our Project Team will make the best effort to obtain resources for this program, we also would like to know which groups can participate in this activity and what contributions from the collaboration can be expected.
- 3) The extension of the K-hall is another Phase 2 program. By comparing all Lol's of experiments at the K-hall, the Project Team would like to decide what must be done at this time before the Phase 2 program starts. We also would like to consider future upgrade path(s) for the slow-extracted beams.
- 4) At this point, we also anticipate receiving new ideas and new proposals for those experiments that require immediate action(s) related to the accelerator design. We call these programs the Phase 3 projects of the facility. Although we cannot foresee any budget for these experiments at this moment, it is useful and important to learn about their scientific merits and what actions for funding have already been made by the experimental groups. The most important point for these proposals is to identify the place(s) where we must make adjustments for the Phase 1 construction. For example, if a new fast-extracted beam line is required in addition to the neutrino beam line, the Project Team must consider necessary arrangements for this additional beam line, now.
- 5) Some nuclear- and particle-physics groups might be considering use of the 3 GeV PS. A separate call for Lol's will be made for the 3 GeV PS.

Needed Information in Lol

The length of the Lol need not be long. The document must be written in English. Also, the following items must be included in the document.

- 1) General: Name of the proposal, collaborating institutions and names of experimentalists, spokesperson(s) if already known and/or contact person.
- 2) Scientific goal(s) and merits, experimental method(s), urgency, expected manpower situation, etc.
- 3) Possibility of funding from the collaboration including usage of the existing beam lines and/or detectors.
- 4) Other useful information, such as commitments to other experiments, etc.

Other Information

- 1) Deadline: December 31, 2002.
- 2) Lol must be sent to:

Professor S. Nagamiya
Director, Project Office of High Intensity Proton Accelerators
KEK, 1-1 Oho
Tsukuba-shi, 305-0801, Japan

3) Consultation and/or information on Lol:

Professor J. Imazato
Head, Nuclear & Particle Physics Group of the Joint Project
KEK, 1-1 Oho
Tsukuba-shi, 305-0801, Japan
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4) International Workshop on Nuclear and Particle Physics at 50 GeV PS (NP02) will be held at Kyoto University on September 27-29. Activities to create Lol's shall be expected during this Workshop. See <http://www-jhf.kek.jp/NP02>

5) Process after receiving Lol's:

The Project Team is in the process of creating a committee to discuss Lol's and other related issues on nuclear and particle physics experiments at this facility. Based on the recommendations by this committee and based on additional comments from the International Advisory Committee of the Project, the response to each Lol will be made by April, 2003.