KEK/J-PARC-PAC 2007-21
9 January 2008

J-PARC Program Advisory Committee

for the

Nuclear and Particle Physics Experiments at the J-PARC 50 GeV Proton Synchrotron

Minutes of the 4th meeting held on
Monday, Tuesday and Wednesday, 7-9 January 2008

OPEN SESSION (7-January-2008):

1. J-PARC Status: S. Nagamiya (J-PARC)
2. P23 Presentation (Analyzing power A_n and A_{nn} in 30-50GeV very-high- $P_\perp^2$ proton-proton elastic scattering) : A.D. Krisch （Michigan）
3. P24 Presentation (Polarized Proton Acceleration at J-PARC): Y. Goto (RIKEN)
4. P21 Presentation (An experimental Search for Lepton Flavour Violating mu-e conversion): Y. Kuno (Osaka)
5. E03 Report: K. Tanida (Kyoto)

OPEN SESSION (8-January-2008):

6. Report from beam line planning committee: K. Nishikawa (KEK)
7. E07 Report : K. Nakazawa (Gifu)
8. E14 Report : T. Nomura (Kyoto)
9. E15 Report : M. Iwasaki (RIKEN)
10. E11 Report : Neutrino Beam Line Status: T. Kobayashi (KEK)
11. E11 Report : D. Wark (IC London)
12. E06 Report : J. Imazato （KEK）

CLOSED SESSION(7,8,9-January-2007)::

Present: T. Bressani, A. Ceccucci, H. En'yo, K. Hagiwara, E. Hiyama, Y.B. Hsiung, K. Inoue, J. Imazato (Secretary), T. Ishii, T. Kishimoto*, S. Nagamiya (J-PARC Center Director)*, T. Nakano, K. Nishikawa (Secretary), J-C. Peng, N.Saito (Secretary), H. Sakai*, M. Shaevitz, F. Takasaki (IPNS director)*, K. Tokushuku (Chairperson), H. Yamamoto*

*) Part of the time

1. PROCEDURE

The minutes of the third J-PARC-PAC meeting (KEK/J-PARC-PAC 2007-7) were approved after minor updates associated with KEK/J-PARC-PAC report numbers on page 1 and 13.

2. DISCUSSION ON J-PARC GENERAL STATUS

The PAC heard the status of the J-PARC from the J-PARC project director, Shoji Nagamiya in the open session.

- The commissioning of the accelerator is going well. The first 3 GeV proton beam was successfully extracted from the rapid cycle synchrotron (RCS) on October 31. The construction is almost on schedule.
- Construction of the building for the materials and life science facility (MLF) and the hadron experimental hall were completed in summer 2007.
- Superconducting magnets for the neutrino beam line were delivered and excavation of the neutrino near detector hall has started.
- JFY2008 is the last fiscal year for J-PARC construction and the funding for J-PARC operation started in JFY2007. The operation cost per year was estimated to be 18.7 billion yen for 200 day operation, in addition to 3 billion yen for the personnel. The review committee formed by the government understands this estimation but, at the same time, recommended an effort for cost reduction. The operations budget in JFY2008 is expected to provide for half of the full operation.

During this time, it is planned that there will be two beam cycles, ~40 days for MLF users and a pilot run for K1.8 BR in the hadron hall.

- The discussion of J-PARC upgrades will be first discussed in the Users Steering Committee which has been formed under the J-PARC center. Steering Committee members were selected in November, including representatives from the four user communities.

- The PAC now understands that it does not need to make the assessment of the phase-2 projects which was requested in the previous meeting.

The PAC congratulates the J-PARC center for the successes associated with the beam acceleration and extraction in the RCS.

5. PROPOSAL EVALUATION

1. **P21:** An experimental Search for Lepton Flavour Violating mu-e conversion

The P21 (COMET) collaboration proposes to search for lepton flavor violation (LFV) in the coherent neutrino-less conversion of a muon to an electron in muonic atoms with a sensitivity less than 10^{-16}. Observable LFV in neutral currents is a process manifestly beyond the standard model. Model predictions based on various beyond the standard model processes have been put forward including supersymmetry, heavy neutrinos, multiple Higgs bosons, leptoquarks, and composite leptons. All the models except the Higgs boson mediated ones can involve photon couplings and so can also be probed through searches for muon to electron + gamma events. An observation of LFV in mu-e conversions would not only be a spectacular discovery but also give important information on, for example, the origin of flavor physics in supersymmetric theories. If LHC discovers supersymmetry, mu-e conversion could be very important in sorting out the physics scenarios of supersymmetry breaking. If LHC does not see new particles in the TeV scale, mu-e conversion can probe for such phenomena at mass scales higher than those accessible at LHC. For models that predict both mu-e conversion and mu to e+gamma, observation of both rates would highly constrain the physics beyond the standard model.

The proposed COMET experiment would use an 8 GeV primary proton beam from the J-PARC main ring to produce pions. Muons (<75 MeV/c) from low energy pion decay would then be transported in a curved solenoid system to an aluminum stopping target. Mono-energetic electrons (105 MeV) from mu-e conversion events would then be transported in another curved solenoid system to a combined tracking plus calorimeter detector. This unique design has excellent rejection of background with an overall signal efficiency of 4%. Background rejection should be highly effective and the estimated background is at the 0.4 event level for the full proposed data run.

With the beam and detection system proposed for COMET, the branching ratio sensitivity for a mu-e conversion signal would be 6.4×10^{-17} at 90% CL for 2×10^{7} sec of running (or 8×10^{20} protons on target). This sensitivity is almost five orders of magnitude better than the current best published limit of 4.3×10^{-12} by the SINDRUM-II experiment at PSI. The MEG experiment at PSI is expected to have new results on mu to e+gamma over the next several years. The sensitivity goal for MEG is 10^{-13}. This rate is equivalent to a mu-e conversion rate of about 5×10^{-16} if photon mediation is the dominant process. Thus, the proposed COMET experiment would have ten times better sensitivity than MEG in reach for LFV via photon mediation. If MEG observes the mu to e+gamma decay, then COMET can not only confirm LFV but also give essential information on the sign and magnitude of non-photonic processes. If MEG does not observe mu to e+gamma decay, then COMET will open up an important new window for LFV

The PAC is impressed with the physics capabilities of the proposed COMET experiment and believes that this experiment could become one of the flagship experiments in the J-PARC program. On the other hand, this is a very difficult experiment and will demand large resources from the collaboration and the laboratory. A detailed assessment by the PAC and Laboratory of the feasibility for making such a precise measurement will need a more detailed design and simulation of the experiment. For these reasons, the PAC asks for more information to be provided over the next several meetings on the design, capability, and schedule for the experiment. This information and answers to the questions posed below should be given in an addendum to the proposal and presentations should be given at the next meeting if possible. Preliminary interactions should take place with the FIFC as to resources, schedule, location, and beam requirements. If possible a task force should be set up to consider the special demands of the

required beam structure, energy, and intensity. Reports from these committees should be made to the PAC in upcoming meetings. The collaboration also needs to develop a Conceptual Design Report for the complete experiment in order to allow realistic assessments of the feasibility, cost, and schedule.

Specific questions from the PAC that need to be addressed are:

1) How specifically can the information of mu-e conversion and mu to e+gamma be used together to understand the physics beyond the standard model?
2) The experiment needs to be optimized with respect to obtaining the best sensitivity under the beam constraint of $8x10^{20}$ protons on target.
3) A detailed design for the experiment needs to be developed so that a realistic cost and schedule can be determined.
4) The collaboration appears to be small for the scale of the experiment. A resource loaded schedule showing how the experiment can be designed, engineered, constructed, and commissioned is needed to show if the plans are realistic.
5) A realistic schedule for developing the superconducting beamline solenoid should be worked out including a prototyping program.
6) How is the proposed COMET experiment better than the proposed Fermilab Mu2E experiment and vice-versa? What are the advantages of both experiments going forward and making measurements?
7) How does COMET fit with the proposed PRISM experiment? Is COMET a needed first step in order to realize PRISM? Would it be more effective to move directly to mounting the PRISM experiment without doing COMET?
8) Laboratory management needs to make an assessment of the resources and funding that could be made available for COMET. It appears that extensive engineering support will be needed. Is the required amount available and on what timescale? The Laboratory needs to work with the COMET collaboration to develop a realistic schedule and funding plan.
9) Laboratory management needs to work with the COMET experimenters to develop a plan and schedule for locating the experiment in the hadron hall.
10) The beam requirements for COMET running are non-standard. The collaboration needs to work with the Laboratory to assess the feasibility and impact of running the J-PARC facility for the COMET experiment.

2. **P23:** Analyzing power A_n and A_{nn} in 30-50 GeV very-high- P_T^2 proton-proton elastic scattering

The primary goal of the proposed experiment is to measure the spin-dependent observables A_n and A_{nn} for proton-proton elastic scattering at high P_T^2 up to 12 $(GeV/c)^2$ using polarized and unpolarized proton beams of 30-50 GeV at J-PARC. Surprisingly large values of A_n and A_{nn} were found in previous experiments, in striking disagreement with the prediction of perturbative QCD. Various non-perturbative models have been proposed, but none could explain both the A_n and the A_{nn} data. The proposed experiment would utilize an existing transversely polarized frozen ammonia target, together with a 35-meter-long recoil magnetic spectrometer which is new and needs to be constructed. Measurement of the double spin asymmetry A_{nn} further requires transversely polarized proton beams to be developed at J-PARC.

The PAC believes that the proposed measurements require significant commitments and resources from J-PARC. While it is of some interest to extend the existing A_n and A_{nn} data to larger values of transverse momenta, it is not clear how these proposed measurements would improve our current knowledge of the source of these effects from QCD or proton structure. In particular, the difficulty in explaining existing data with all models might not be clarified with additional data. Compelling physics motivations have to be presented by the proponents of this experiment in order to justify the significant resources and development required for carrying out this experiment. Furthermore, the feasibility for measuring the highest P_T^2 region, where the cross sections are very small, should be examined with Monte-Carlo studies. The PAC would like to hear if better measurements might be made if a polarized beam would become available at J-PARC.

3. **P24:** Polarized Proton Acceleration at J-PARC

This experimental group proposes to add to the J-PARC facility the ability to accelerate polarized proton beams to 30-50 GeV for experiments such as polarized Drell-Yan measurements (P04) and the asymmetry measurements (P23).

The technical feasibility for preserving the polarization during acceleration has been studied by accelerator experts from the ion source to the main ring (MR) with no show stopper found. The major physics case was shown related to the P04 proposal. With a di-muon spectrometer, the spin asymmetry of the Drell-Yan

process can be measured and the flavour asymmetry of polarized sea-quarks can be studied. The sign of the transverse single-spin asymmetry measurement is predicted to be opposite to the deep inelastic scattering, according to QCD models. The measurement will test this prediction and shed light on the orbital angular momentum of quarks and gluons in the proton. Such a study is rather difficult at existing facilities such as the polarized collider, RHIC at BNL, and will only be possible at J-PARC in the foreseeable future.

This proposal addresses significant additions to the present scope of the J-PARC accelerator complex. Although the PAC recognizes that polarized beam acceleration in the MR can be one of the future options in J-PARC, judgement of the technical feasibility of this proposal is beyond the present PAC's scope.

The PAC encourages the group to develop the technical requirements and design for polarized proton acceleration along with a plan for a realistic schedule. As part of this process, the PAC recommends that the collaborators be involved in the general discussions of the J-PARC upgrades where other upgrades such as the Linac energy upgrade and 50GeV upgrade will be discussed.

Although there are seemingly significant physics possibilities with polarized proton beam at J-PARC, the present proposal does not contain sufficient information for any specific proposed measurements to be considered as a physics proposal. The PAC would like to hear a separate proposal with more specific discussion of the physics and proposed measurements.

4. **E03:** Measurement of X rays from Ξ^- Atom

The E03 group presented their works in response to the issues pointed out by the FIFC and PAC in the previous meeting including in-beam calibration, dead time improvement and background estimation.

A procedure for online calibration of the germanium (Ge) detectors has been developed. An LSO scintillator (Lu_2SiO_4) equipped with PMT readout will be placed next to each Ge detector. Gamma rays from the radioactivity in the LSO scintillator can then be used for the energy calibration of the Ge detector. A calibration signal in the Ge detector during the physics runs can be obtained by triggering on the associated LSO PMT. In-beam performance was demonstrated

with a test with a positron beam from the LNS. Even with 60% dead time, energy calibration at the level of ~50eV was demonstrated.

The high dead time (~50%) reported in the FIFC meeting was a conservative estimation. The experience with the past experiment gives a lower rate. In addition, the situation can be improved by changing the spill structure of the slow extraction.

The estimation of continuous X-ray background was re-done with the information of the past experiments on sigma X-ray measurements and Hyperball experiments at KEK-PS. All estimations are consistent with the level used in the proposal.

The PAC appreciates the efforts performed by the E03 group to clarify the issues associated with the experiment. The PAC has no major concerns and **now recommends stage-2 approval for E03**

5. **E06:** Measurement of T-violating Transverse Muon Polarization in $K^+ \rightarrow \pi^0 \mu^+ \nu$ Decays

The PAC believes that the E06 (TREK) collaboration has addressed the previous PAC comments and recommendations and also the concerns from FIFC report. The PAC recognizes the unique physics reach, high scientific merit and potential new physics impact of a T-Violating transverse muon polarization measurement in stopped K^+ decay at the sensitivity of 10^{-4} proposed by the TREK collaboration. The physics case and experimental technique remains a unique and strong experiment to be pursued at J-PARC. The standard model contribution and final state interaction effects to the T-violating transverse muon polarization are all quite small, much less than 10^{-5}. Therefore, a nonzero and sizable value of the transverse muon polarization is a clear signature of T-violation which would be a clear signal of new physics beyond the standard model.

The PAC heard studies from the TREK collaboration on the high rate performance for several detector elements such as the target fiber readout using MPPC, GEM chamber and APD readout for the CsI(Tl). The radiation hardness measurement of MPPC (avalanche photo-diode) is limited to one-year of operation due to the high rate environment and the collaboration is considering the use of a multi-anode PMT (MAPMT) option. The PAC also heard about the combined function magnet B1 for the beam optics which improves the kaon beam acceptance.

Overall the PAC is impressed with the progress of E06 and feels that this is an

important measurement to be made at J-PARC. However, before recommending stage-2 approval, the PAC would like to see progress by the TREK collaboration in securing the funding for the experiment both internationally and domestically and in the collaborative effort with the E14 experiment to define and design workable beamlines for both the KL and K1.1 lines.

6. **E07:** Systematic Study of Double Strangeness System with an Emulsion-counter Hybrid Method

The E07 group presented the recent progress with an emphasis on the items identified by the PAC and FIFC in past reviews.

The group has developed a new alignment procedure between the emulsion stack and the tracking system which consists of double-sided silicon strip detectors (DSSDs). The emulsion stack will be first illuminated by beam with a collimator with a very small hole (0.3mm x 0.3mm). The beam spot will be used as a marker. With this marker, relative alignment with 0.1 mm accuracy can be achieved.

The combined performance of the DSSD and emulsion was tested with the proton beam at RCNP. Residuals between emulsion tracks and DSSD tracks were 20~45 μm for the x and y position resolution and 10~20mrad for the angle resolution. Comparing with the previous KEK-PS E373 experiment, the signal-to-noise ratio in Ξ-particle tracking will be improved from 1-to-3 by a factor of 9 to 3-to-1.

The group still needs funding for purchasing half of the emulsion. The group has applied for a JSPS grant-in-aid for scientific research as a 5 year project starting from FY2008.

The PAC congratulates E07 for their good progress in defining the tracking procedure. The PAC also took note that the group needs to know the beam time schedule at least one year in advance in order to prepare the emulsion target.

7. **E11:** Tokai-to-Kamioka (T2K) Long Baseline Neutrino Oscillation Experimental Proposal

The PAC heard two reports on the T2K project. The first described the status and progress of the neutrino beam and the second gave a status and progress report for the detectors, mainly covering the near ND280 detector.

For the work on the beam, all components are now in production and the installation of components is proceeding on schedule. During 2007, many milestones have been achieved including the installation and testing of the large helium target station vessel, the long-term testing of the 1st and 3rd horns, tests of the remote handling system, and the delivery of the day-1 production target. Installation of almost all components will take place in 2008 with the superconducting magnets starting in February and the target and horns in July. Operation tests of the magnets and horns will take place in early 2009 with a final interlock inspection in March 2009. With this great progress, it appears that the beam system will be fully functional for the start of beam in April, 2009. The PAC commends the group for their exemplary work in making all this happen.

As part of the neutrino beam characterizations, the T2K group is working on the CERN-SPS NA61 SHINE experiment to measure pion and kaon production using a T2K replica target. These data will be important for constraining the near and far detector energy spectrum and ratio as well as the electron neutrino contamination from kaon and muon decay. The data taking has gone well and almost 200 thousand events have been recorded. Further data taking is planned for 2008 that will give a total of a million interactions in the replica target.

The T2K collaboration has requested a beam run at J-PARC of 100 kW for 10^7 seconds by the summer of 2010 in order to make their initial physics measurements in a timely way. With this data set, T2K should be able to make a first search for the θ_{13} mixing angle with sensitivity significantly better than the current CHOOZ limit. **The PAC concurs with this request and recommends that the Laboratory try to accomplish this goal.**

For the detectors, the far Super-K detector is now fully functional and the preparation of the new readout system is on schedule to be ready for calibration running in the summer of 2008. The main issue for T2K has been the schedule for the near 280m detector (ND280). The near detector enclosure construction has begun and it is expected that the on-axis INGRID neutrino monitor will be ready for the first beam in 2009. The INGRID and most of the other ND280 subsystems are to use MPPC silicon photodetectors from Hamamatsu. These detectors are a new technology and there has been some worry concerning their viability. Recent stability tests and commitments by Hamamatsu look promising but progress should be monitored.

In general, the status of the ND280 project is that all sub-detector systems are progressing with some modest delays. Overall, the progress is on track to have all major components of the ND280 detector operational by end of 2009 with the exception of the Barrel ECAL. The overall funding is fairly good but there is no contingency for unexpected costs or extra needed items. To partially alleviate this lack of contingency and give the collaboration flexibility in covering experimental costs, the collaboration has formed an international T2K finance committee (IFOP). At the first meeting, the IFOP committee agreed to the T2K collaboration proposal for contributions from each country to a common fund to be used for costs associated with T2K systems. The PAC had recommended forming such a committee and is glad to see the good progress in this area.

The T2K collaboration is also working hard on the offline software for the ND280 detector. This is important not only in preparing for data but also in allowing the experiment to estimate systematic uncertainties associated with the disappearance and appearance measurements. The PAC looks forward to seeing the results of full simulation studies on these systematic uncertainties at the next PAC meeting.

8. **E14:** Proposal for $K_L \rightarrow \pi^0 \nu\bar{\nu}$ Experiment at J-PARC

The physics case for E14 remains very strong and timely because the proposed experiment bridges the sensitivity between the Grossman-Nir Model independent limit and the very precise Standard Model (SM) prediction. Several extensions of the SM, including supersymmetry, allow for a significant enhancement of the $K^0_L \rightarrow \pi^0 \nu\bar{\nu}$ rate, without affecting the B decay observables very much. This is because the SM contribution to the $K^0_L \rightarrow \pi^0 \nu\bar{\nu}$ amplitude is strongly suppressed in B decays by the CKM factor, $V_{ts}^* V_{td} \sim \lambda^5$.

There are several new physics models which explain the smallness of the non-SM effects in the electroweak precision experiments (the little hierarchy problem) and have candidates for the Dark Matter of the universe. Example models include: 1) the Littlest Higgs Model with T-Parity (LHMT), 2) the SM with Universal Extra Dimensions (UED), and 3) the minimal sypersymmetric SM (MSSM) with non-minimal flavor structures. All of these models can give rise to rates which are an order of magnitude larger than the SM prediction, sometimes saturating the Grossman-Nir bound. Since the SM prediction is known with 15% uncertainty, a moderate experimental error of 10 to 20% can establish new physics effects in the

d-s-Z vertex, and its flavor structure can be determined once the masses of new particles are measured at the LHC. Non-minimal flavor structure of the super-particle masses in the MSSM is generally expected in SUSY-GUT theories, where lepton flavor violation is also predicted. Therefore, in the MSSM, $K^0_L \to \pi^0 \nu\overline{\nu}$ rate plays a similar role as lepton flavor violations, which probe the flavor structure of SUSY GUT theories. To summarize the situation in one sentence, this experiment must be done and J-PARC appears to be the best place to perform it.

The PAC heard a report from the "Task Force on E14" associated with the beamline interferences. The main issue is to mitigate the effects due to the interference with the K1.1 beam line which are two-fold. On the one side, the presence of the K1.1 beamline components reduces by almost a factor of two the yield of neutral kaons per incoming protons. On the other hand, according to a simulation, the ratio of halo-neutrons to kaons increases by a factor of more than three. To reduce this interference, E14 has simulated a modified K1.1 layout that seems to be able to preserve the kaon flux per proton and to limit the worsening of the ratio of the halo-neutron to kaon ratio to about 60%. A beam survey seems to be an important step in order to match the beam line needs to the experiment. According to the current schedule, the beam survey can take place in the fall of 2009 and, given the small amount of slowly extracted proton expected by that date, does not require expensive shielding. The purpose of the survey is to 1) understand the effects related to the beam position stability in the presence of an extended target, 2) to study the K^0_L yield and 3) to measure the neutron fluxes.

The "Task Force on E14" concluded that E14 addresses a very important physics goal, although without a large safety margin. It also concluded that the beam line should be optimized in terms of K^0_L yield, detector acceptance and neutron-induced backgrounds.

The PAC endorses the conclusions of the task force and recommends that the modified layout of the K1.1 beam line be considered as a new baseline design and be studied in detail. A detailed plan for the beam survey should be reported at the next PAC meeting.

The PAC heard a report from the E14 collaboration about the overall progress. It was reported that the E391a experiment at the KEK-PS has analyzed ~30 days of data collected in Feb-March 2005. The reported 90% CL upper limit, $BR(K^0_L \to \pi^0 \nu\overline{\nu}) < 6.7 \times 10^{-8}$, improves, by a factor of about three, the previous best limit

and has been submitted for publication. The PAC congratulates E391a and re-affirms that the thorough analysis of these data is essential for the planning of E14.

Concerning the overall kaon flux per incoming protons, simulations based on different codes yield results different by large factors. The consistency of the FLUKA simulation with data collected by the E802 experiment at BNL might indicate that there will be a significant improvement of the kaon flux per proton with respect to the numbers quoted in the proposal. Plans for the optimization of the beam line were briefly presented and an update on the E14 signal/background ratio was given taking into account better simulations including more realistic parametrizations for the photon fusion detector response. The preparations for the shipping of the CsI blocks from the US have started and a prototype read-out board based on a FADC readout was successfully tested. From the point of view of funding, it is noted that a significant part of the external funding has been secured.

In conclusion, the E14 experimental design will allow the experiment to probe the important $K^0_L \rightarrow \pi^0 \nu\overline{\nu}$ branching ratio region down to the Standard Model. The PAC remains strongly convinced that the E14 experiment has the potential to make one of the important measurements to be done in particle physics.

9. **E15:** A Search for deeply-bound kaonic nuclear states by in-flight ^{3}He(K^-, n) reaction

The E15 group reported the progress on the detector production. The major detector components, the CDS and liquid ^{3}He target will be completed by August 2008. All detector components will be ready by December 2008.

One of the key points of the E15 experiment is the missing mass spectroscopy obtained by measuring the momentum of the outgoing neutron with the time-of-flight technique. In the proposal, the mass resolution was estimated to be of ~20 MeV/c^2 (FWHM) with the 15m flight path. It has recently been realized that the flight path is limited to 8~10m owing to the shielding wall which has to be installed in the downstream area. This will degrade the mass resolution to ~34 MeV/c^2 (FWHM). The group is also concerned about the increase of background from the shielding wall into the neutron counters. The group has requested to

perform the experiment with the K1.1 beam line in order to keep the data taking for E17 experiment in the K1.8BR line.

The PAC is strongly concerned about the detector layout problems. For this reason, the PAC urges the group to quantify the impact on the physics goals and work out a solution to improve the measurement in K1.8BR beam line. The PAC would like to hear the group's decision at the next meeting. The running plan of the E17 experiment should be included as well.

6. DATE FOR THE NEXT J-PARC PAC MEETING

The tentative date for the next meeting is 5-7 June 2008. The dates will be confirmed after contacting the new PAC members. The tentative agenda is;

- Status of J-PARC
- Report from the E15 and E17
- Status report from T2K, K0 and TREK experiments

The coming meetings are in September 2008 and in February 2009.

8. FOR THIS MEETING, THE J-PARC PAC RECEIVED THE FOLLOWING DOCUMENTS:

- Draft Minutes of the third J-PARC PAC meeting held on 6-7, July 2007 (KEK/J-PARC-PAC 2007-7)
- LOI: A new approach to study the in-medium $\phi(1020)$-meson mass (KEK/J-PARC-PAC 2007-8)
- Proposal: Analyzing power A_n and A_{nn} in 30-50 GeV very-high-P_t^2 proton-proton elastic scattering (KEK/J-PARC-PAC 2007-9)
- Proposal: Polarized Proton Acceleration at J-PARC (KEK/J-PARC-PAC 2007-10)
- Proposal: An Experimental Search for Lepton Flavor Violating $\mu^- - e^-$ Conversion at Sensitivity of 10^{-16} with a Slow-Extracted Bunched Proton Beam (KEK/J-PARC-PAC 2007-11)
- LOI: Combined measurements of nuclear ω bound state and ω mass modification in $p(\pi^-,n)\omega$ reaction. (KEK/J-PARC-PAC 2007-12)
- A letter from the organizers of a workshop "Towards Upgrade of the J-PARC Hadron Experimental Facility" (KEK/J-PARC-PAC 2007-13)

- Progress Report to the 4th J-PARC PAC meeting by E06 Collaboration PARC (KEK/J-PARC-PAC 2007-14)
- Report to the 4th J-PARC PAC meeting by E14 Collaboration PARC (KEK/J-PARC-PAC 2007-15)
- LOI: A Hyperon-Nucleon Scattering Experiment using a SCIFI-MPPC System. (KEK/J-PARC-PAC 2007-16)
- LOI: Gamma-ray spectroscopy of hypernuclei at K1.1. (KEK/J-PARC-PAC 2007-17)
- LOI: Study of Σ-N interaction using light Σ-nuclear systems. (KEK/J-PARC-PAC 2007-18)
- LOI: Search for Θ^+ hypernuclei using (K^+, p) reaction. (KEK/J-PARC-PAC 2007-19)
- J-PARC E15 Status Report (KEK/J-PARC-PAC 2007-20)