Vol.7 No.1

KEK News

Under the New Management

High Energy Accelerator Research Organization

New year's resolution by the Director General

Happy New Year to everyone. I received the written appointment to tell me that "I shall be the Director General of KEK". I will put my serious effort to further improve the KEK for which I need your working together with me.

As you already know that there are 14 Inter-University Research Institutions which are to be reorganized into 4 Agencies, excluding National Institute of Multimedia Education. They are: National Institutes for the Humanities, National Institutes of Natural Sciences, Research Organization of Information and Systems and High Energy Accelerator Research Organization. National Institutes for the Humanities is headed by the President Ishii of Kanda Foreign Language University combining National Institute of Japanese Literature, International Research Center for Japanese Studies, Research Institute of Humanity and Nature, National Museum of Ethnology, National Museum of Japanese History. National Institutes of Natural Science is headed by the present Director Shimura of JSPS Stockholm Office combining National Astronomical Observatory of Japan, National Institute for Fusion Science, Institute for Molecular Science, National Institute for Basic Biology and National Institute for Physiological Sciences. Research Organization of Information and Systems is headed by the Director General Hotta of Institute of Genetics combining National Institute of Informatics, National Institute of Genetics, The Institute of Statistical Mathematics and National Institute of Polar Research.

KEK as the new agency will consists of the Institute of Particle and Nuclear Study and the Institute of Materials Structure Science along with Accelerator Facility and Research Support Facilities. Thanks to the great efforts done by the former KEK management, KEK structure will stay unmodified after becoming an independent agency. I do appreciate this very much.

After April, other three organizations will start as brand new organizations and would face a lot of difficulties. These three appears to me to have different character when compared with KEK. KEK has a clearly defined back bone - high energy accelerators - that would enable unified management. Others consists of loosely coupled organizations, so call Okazaki style. KEK appears to be more on the line of the law for national universities as independent agencies. All of us are expected to demonstrate maximum efficiency for research results. Which style of organization suites this better will become clear in a few years.

KEK has been producing a lot of world class research results. We are one of a few research organizations in the world that makes USA researchers feel challenged. I am convinced that we will continue producing competitive research results after we become an agency, without doing something special, but keep doing the same continuous effort.

When directing KEK researches, I shall be a good listener open to any researcher in the fields. Especially on future projects of KEK, I hope to hear a lot of constructive discussions among relevant community members. The site decision for ITER project in February could make a big impact on KEK future projects and need to keep an eye on it. For any future big project, it would have to be either multi-purpose or global to be persuasive under the very tight government budget.

I should point out that there would be some differences after we will become an independent agency. We will be evaluated how well we will perform with respect to the promised midterm goal within the next 6 years. We should be fully aware of this in doing our research activities.

In particular, I should ask the people in charge of J-PARK project if they could complete the facility and start the research activity on time and if accepted experiments can start taking data right away.

Next thing is the efficient use of budget and human resources. Members of KEK are responsible to support inter-university researches that use KEK facility. Hence KEK will invest in these tasks related to the inter-university researches as listed in the interim goals. KEK researchers also have responsibility to make better use of the facility and to improve the facility and equipment. You should consciously apply for budget-through-competition for such research and development projects. Such efforts will be appreciated.

The responsibilities of universities are education and researches. KEK is a research facility but its contribution to education should be fully recognized.

Since we are participating in the Graduate University for Advanced Studies, we should make full use of the situation in bringing up excellent young researchers. This is not only vital for us but will be well recognized socially.

At present, we can not justify putting much time and/or budget for projects in an infant stage or R&D for research equipment using new ideas (*translator's comment: because they are not well recognized, and unclear of its potential/value*). If we get students' help to work on them, we might be able to get these going.

Additional responsibility of Universities after they will become an independent agency, "explicit/direct contribution" have been talked about. Obviously education and researches are very important contribution to the country. However, they should put more efforts for explaining about their research outcomes to general public as well as to the world. Through an easy-to-understand explanation on newspapers and other mass media, we successfully presented our achievements by B-Factory accelerator and experiment, which in turn get well appreciated by Japanese people for its providing a little bit of encouragement and hope in science and technology of this country. We should put more effort on public relations. I would ask especially IMSS people to be more conscious about the public relation to let people be aware of their activities. I would like to promote activities such as getting young students involved in hands-on experience in physics as well as into adult education. I urge you to work on these.

One of the direct contributions we do is to initiate the development of new technology through our R&D projects and then feed them back to industries.

Medical application of FFAG accelerator, C-band technology for synchrotron radiation source and ultra-compact electron accelerators comes up to my mind first. Surely, there must be many such applications of our technological findings that would be quite valuable for industries. However, I would like you to be aware that our top priority should be on research and not on industrial applications. There are many outside experts for it.

The law to establish an organization to handle intellectual property of inter-university research organizations was proposed by 13 Inter-University Research Organizations and was approved last year. We will be conforming with the law starting next fiscal year. Present nation wide problem is to find experts on the intellectual properties for such organization. This relates to collaborations with industries. If a collaboration of that style would improve our research, we should push for it provided that we must be careful when we publicize the results. These would be the things we should put our effort into. I should repeat that our activity should aim for a better research and not for an intellectual property.

I think KEK is doing well. But it is more difficult to stay on top than to reach the top. I encourage you to keep working hard. Thank you for listening.

Professor, ***Yoji TOTSUKA***, gave his first New Year's resolution as the new Director General of KEK on January 5th, 2004. He is well known for his neutrino works leading the Super Kamiokande project. He is an expert for many things and among them is Karate. He started his Karate career in 1960 and is an awesome 6-Dan (grade) Blackbelter (see front cover) ready to face any difficulties.

Editor's note

KEK started with the new Director General, Professor Yoji TOTSUKA, the Director of the Institute of Particle and Nuclear Studies, Professor Makoto KOBAYASHI (see his article on page 4), and the Director of the Institute of Materials Structure Science, Professor Atsushi KOMA (center picture on the back cover). KEK is facing another transition phase following the government decision. KEK will soon become an Inter-University Research Institute Corporation instead of being a government organization. The preparation for the transition has been a long and tedious work for the new management. All of us are standing behind the new management determined to make the KEK an even better one. (Cover page pictures)

Institute of Particle and Nuclear Study

Thanks to the previous management, IPNS is successfully running two major experiments, Belle and K2K. Bell is an experiment studying the B-meson system using the asymmetric e^+e^- collider, KEKB. The most remarkable thing is that KEKB achieved the monumental luminosity of 10^{34} $cm^{-2}s^{-1}$ recently. With this high performance of KEKB, the Belle group has accumulated the data corresponding to the integrated luminosity of 158 fb^{-1} so far. They have already established CP violation in the B-meson system and obtained many new results on the properties of the B-meson. It is necessary, however, to explore the B-meson system further, because it provides very important information on new physics beyond the standard model.

K2K is the first accelerator-based experiment of long-baseline neutrino oscillation. Neutrinos produced by the 12 GeV proton synchrotron of KEK are measured at the Super-Kamiokande 250 km away from KEK. Recovering from the accident of the Super-Kamiokande, they restarted measurement in the last December. They plan to double the data obtained before the accident and the shutdown of the KEK PS.

KEK and JAERI are constructing an accelerator complex called J-PARC in the Tokai-campus of JAERI. J-PARC is a multipurpose project ranging from pure science to the transmutation of nuclear waste. Among the experiments related to particle and nuclear physics, to which IPNS is responsible, study of the hyper nucleus is one of the unique features of the project. It is also very important that we can start a long-baseline neutrino oscillation experiment as soon as possible using the neutrino beam produced by 50 GeV proton synchrotron of the complex.

The world community of the high energy physics desires to have a linear collider. In order to realize it the International Staring Committee was organized and the technology choice of the accelerator is in a critical stage. We, IPNS, wish to construct the linear collider in Japan and for this purpose we will make our best effort.

Besides these major projects, there are many activities that are giving wider spectrum to the research at IPNS. In particular those activities that could be seeds of a future project should be encouraged.

The author of this article, Prof. ***Makoto Kobayashi***, is the new director of the Institute of Particle and Nuclear Study. He is a well known theorist, especially by the Kobayashi-Maskawa theory.

Looking back the history of IPNS

Before the start of the new KEK in 1997, there had been long discussions for the future of accelerator-based fundamental science among various participating groups. A clear conclusion was reached on the form and operation of the new organization. Having taken a part in the decision, I always felt like sharing the responsibility to make the discussed ideas real.

The largest objective was the start of the construction of high-intensity proton facility that had already been striven for over a decade and was the major motivation for the INS of Univ. of Tokyo to get together with the former KEK. On the other hand there were many exciting experiments and projects to be conducted by the newly formed Institute of Particle and Nuclear Study. For instance, both the Belle and K2K experiments were about to be constructed. Other experiments at the 12-GeV PS and several international collaborations abroad were running. A new large-scale international cooperation for ATLAS had to be started. The new fortified Institute was expected to carry these programs, providing good opportunities for university groups to conduct exciting researches, without being affected from the organizational change. The new KEK also wished to make itself more open and visible to the world community and measures were taken for this purpose.

Looking back, I find most of the wishes are being realized in a marvelous way. Now the J-PARC project, including the 50-GeV PS, is under construction in cooperation with JAERI. Both Belle and K2K experiments are showing wonderful outputs that attract world-wide interests. The theory group is also enriched attracting many young theorists. These productive programs invited more physicists from abroad. By now most of the research projects at the Institute are carried out by international groups. It was a great pleasure to see everybody who came to KEK enjoy working on frontier physics that made her/his long trip worthy.

Shortly before my term ended, a colleague asked me if there was any lingering concern left. My immediate answer was "No". Many things went very well and I was really pleased to be able to pass on the responsibility to Kobayashi-san when the IPNS is in such a good shape. Clearly there were plans not yet realized and much improvement are needed to support users from abroad. Our successful years could not come without the hard working researchers and supportive administration people. I was a new comer to Tsukuba and the helps from other leaders in the management were indispensable for me to get through the years. Yet, I think I did my best, too. The success of the Institute owes much to the Accelerator Laboratory and the Applied Research laboratory as well. I see a bright future for KEK, even when the surrounding environment may be changing drastically, as long as such a good spirit is kept.

The author of this article, Dr. ***Sakue Yamada***, was the former director of the IPNS. He is back to research activity going at DESY. He is a Prof. Emeritus of Univ. of Tokyo and of KEK.

Looking back the history of IMSS

The Institute of Materials Structure Science (IMSS) was founded in April 1997 combining former Photon Factory (PF), Neutron Facility (KENS), both of KEK, and former Meson Science Laboratory (MSL) of the University of Tokyo. I have served as the director of this new institute for six years till the end of last March. Now let me examine to what extent my contemplation to develop the research activity of the institute was materialized in my director period.

Major plans that I initially proposed are summarized as follows.

1. Implement large-scale instrumental upgrade of the two existing light source facilities, PF and PF-AR, to make them competitive with the third generation sources.
2. Secure budget for the construction of a high intensity proton accelerator to revitalize over 20 years old KENS and MSL and make them one of the most advanced facilities in the world.
3. Organize strong research teams in a few promising fields and support their activity by assigning highest research priority.

As for the light source upgrade plans, we realized a very successful improvement over the 6.5 GeV PF-AR facility. It included replacement of the whole accelerator vacuum system and construction of a new experimental hall. To my regret the plan to introduce a number of additional straight-sections for insertion devices into the 2.5 GeV PF-ring has not been realized yet.

In 2001, the future plan for KENS and MSL came off as a high intensity proton accelerator complex, the J-PARC project by a joint effort between KEK and JAERI. The complex includes a 3 GeV rapid cycling synchrotron with a design beam power of 1 MW to provide world highest intensity neutron and muon beams to the facilities.

We selected research fields of structural solid state physics and structural biology to be given high priorities. A research program was launched to pursue the structural solid state physics in collaboration with four outside groups tightly connected to KEK experimental facility through a computer network (so called co-laboratories). We could raise a powerful structural biology group and make their laboratory to be one of the leading structural biology research center in Japan.

Importance of particle accelerators is getting more recognition in advanced research fields of materials and life sciences. I feel I made a certain contribution to furthering this scientific development as the IMSS director.

The author of this article, Dr. ***Yoshitaka KIMURA***, the former director of IMSS is actively participating in J-PARC project, helping young accelerator researchers. He retired from KEK last April.

Belle Experiment Update

The evidence that the behaviors of a particle and that of its anti-particle are not identical, called *CP* violation, has been one of the most important physics subjects. The *CP* violation in the *B*-meson (one of the elementary particles) system was first observed in summer 2001 by two *B*-factory experiments: Belle at KEK (see KEK News Vol.5 No.1 2001 and Vol.2 No.3 1999) and BaBar at SLAC in the U.S.A. Since then, the KEK *B*-factory accelerator (KEKB) upgraded its performance remarkably and has achieved the highest luminosity (= measure of the intensity for the collisions) of $10^{34}\,\mathrm{cm}^{-2}\,\mathrm{sec}^{-1}$. By the summer 2003, the amount of data became 5 times larger (152 million *B*-meson pairs) and size of the *CP* violation was measured precisely ($\sin 2\phi_1 = 0.733 \pm 0.063$) for the first observed mode, B^0 to charmonium (mesons consist of charm and anti-charm quark pair) and neutral Kaon, such as $J/\psi K^0_S$. This is quite consistent with the expectation of the Kobayashi-Maskawa scheme in the Standard Model (*SM*).

With the data sample much larger than befor, we can now measure the *CP* violation in the $B^0 \to \phi K^0_S$ decay mode which has much smaller event rate (~1/100) than $B^0 \to J/\psi K^0_S$. We found 68 $B^0 \to \phi K^0_S$ events and measured the size of the *CP* violation, $\sin 2\phi_1 = -0.96 \pm 0.50$. The observed asymmetry data for $J/\psi K^0_S$ and ϕK^0_S are shown in Figure 1. The ϕK^0_S clearly shows asymmetries different from those expected by the *SM*, *i.e.* those of $J/\psi K^0_S$. The probability due to a statistical fluctuation from the *SM* is less than 0.1%. The $B^0 \to \phi K^0_S$ decay is known to occur through a process involving "quantum fluctuations" where the *b*-quark splits, for a brief instant, into much heavier particles: a *t*-quark and a W boson in the *SM* (Figure 2). This quantum fluctuation could occur with new heavy particles beyond the *SM* and their effect might appear as anomalous value of observed $\sin 2\phi_1$.

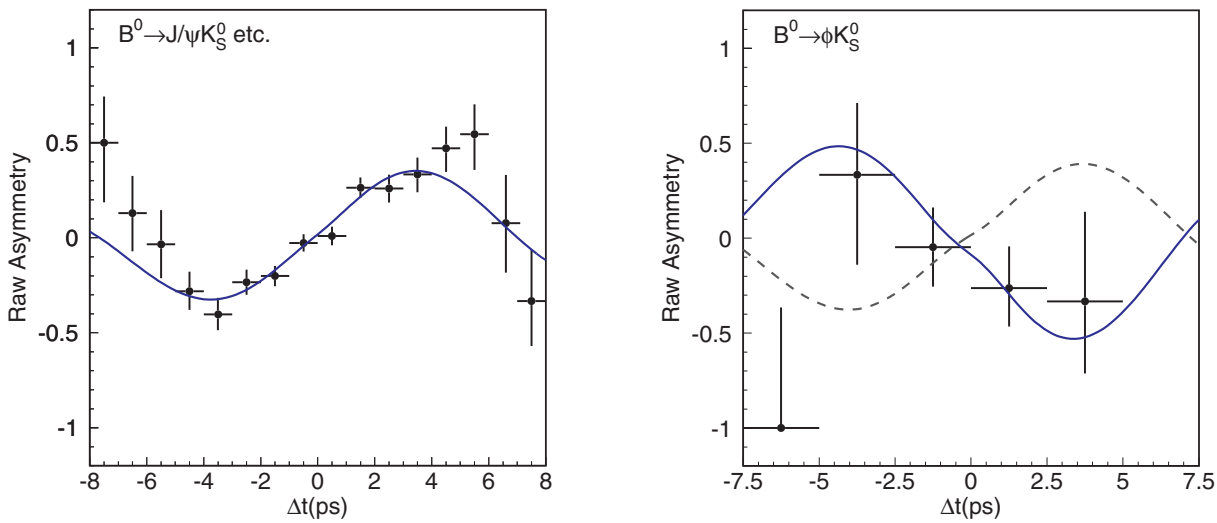

Figure 1: The observed asymmetry between numbers of B^0 and anti-B^0 decays at equal intervals of the decay time for (a) $B^0 \to J/\psi K^0_S$ etc. and (b) $B^0 \to \phi K^0_S$ samples. Solid curves are the fit results to the data, while the dashed curve in (b) shows that expected from the *SM*.

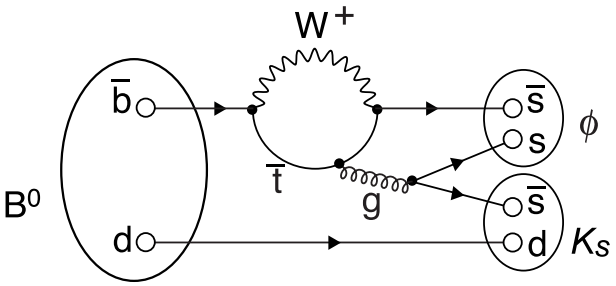

Figure 2: Schematic diagram that shows how B^0 meson decays into ϕ and K^0_S in the *SM*.

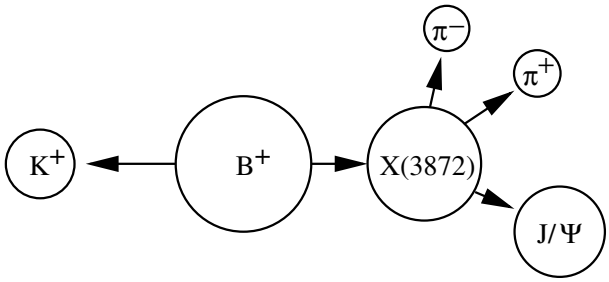

Figure 3: Schematic picture of *B* meson decay to observed X(3872).

The huge number of data samples from the Belle provides opportunities for variety of physics studies, besides for the *CP* violation. An excellent example is a discovery of the "mysterious" new particle, called *X*(3872).

This new particle is observed in the decay chain of *B*-meson to a charged *K*-meson and *X*(3872) which decays into a pair of oppositely charged π-mesons and J/ψ particle (Figure 3) and gives an unexpected peak in the invariant mass distribution at about 190 MeV/c^2 above known ψ', corresponding to 3872 MeV/c^2 (Figure 4). *X*(3872) was confirmed by the CDF experiment at Tevatron proton anti-proton collider operated at the Fermilab in the U.S.A. *X*(3872) contains *c* and anti-*c* quarks as J/ψ, but its mass does not match to that expected for ordinary mesons with this pair. It may be a molecular-like state formed from a D^0 and an anti-D^{*0} mesons or four quarks. This would be the first example of this type of "exotic" state.

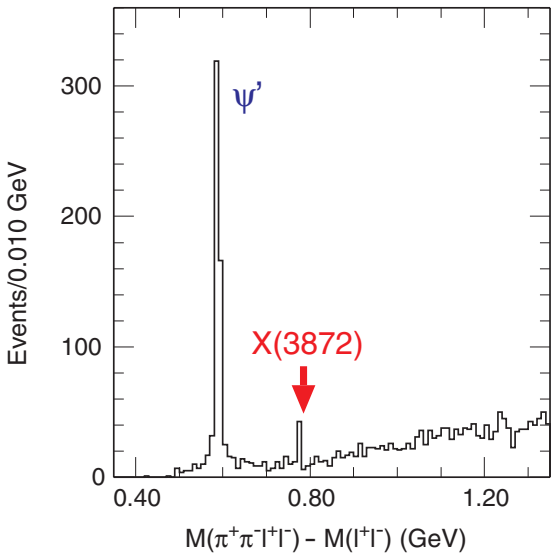

Figure 4: Invariant mass distribution of oppositely charged π-meson pair and J/ψ. The difference from reconstructed J/ψ mass is shown.

We expect further improvements in the KEKB performance and much larger data sample, which would provide even more interesting results.

The author of this article, Prof. ***Yoshihide SAKAI***, is one of the leading members of the Belle collaboration.

ACFA and Its Activities

What is ACFA: In the last two to three decades Asian countries have demonstrated a remarkable progress in the field of accelerator-based science and technology. In addition to the rapid growth of the accelerator facilities in Asian countries, tremendous need was felt for an active collaboration among various accelerator institutions to support the future accelerator activities in Asia for a long time. The proposal of having a new organization was discussed in an informal meeting jointly called by Professor Z. Zheng, Director of IHEP, and Professor H. Sugawara, ex-Director General of KEK, held at IHEP/Beijing on Aug.16, 1995. A new forum called ACFA (Asian Committee for Future Accelerators) was established on April 8, 1996 at the 1st Plenary ACFA Meeting in Pohang, Korea.

ACFA Objectives: The primary objective of ACFA is to promote and strengthen regional collaboration in accelerator-based sciences. The functioning of ACFA in particular, seeks cooperative ways;

- To facilitate efficient utilization of existing human and material resources,
- To bring up scientists of the next generation, and
- To encourage future projects in Asia and make recommendations for them to the governments. ACFA is playing an important role in formulating e^+e^- Global Linear Collider in Asia.

ACFA Activities: ACFA organizes its activities according to the following guiding principles:

- ACFA is open to any active region in Asia, which is willing to contribute to the advancement of accelerator-based science.
- ACFA is not intended to displace or supersede any existing organization.
- ACFA will closely cooperate with ICFA (International Committee for Future Accelerators).

The major activities of ACFA includes

- Regular meetings of Plenary ACFA. Every year a Plenary ACFA meeting has been organized to discuss accelerator activities of various ACFA member countries and the progress of various working groups after its inception. The first Plenary ACFA was held in Pohang in 1996 then in Thailand ('97), Tsukuba, Japan ('98), Indore, India ('99), Kyongju, Korea ('00), Beijing, China ('01), Melbourne, Australia ('02) and the last in Hsinchu, Taiwan ('03).
- Organize or participate sponsoring accelerator schools, symposia, workshops and conferences. ACFA has successfully organized several workshops, symposia and schools in various locations in Asia namely, joint US-CERN-Japan Accelerator School on RF Engineering at Hayama, Japan ('96), 1st Asian Particle Accelerator Conference APAC98 in Tsukuba, Japan in ('98), 1st JSPS Asian Accelerator School on Storage Rings & Superconducting Technology at Beijing in ('99), 2nd Asian Particle Accelerator Conference APAC01 in Beijing in ('01), JSPS Asian Seminar on Synchrotron Radiation Sciences for SESAME in Amman, Jordan in ('02) and CAT-KEK-Sokendai

School on Spallation Neutron Sources at CAT, Indore, India ('04).

- Set up study groups to address special issues of the accelerator sciences. ACFA has organized a few working groups which are actively playing important roles in linear collider activities, high power proton accelerators, electronic publications and electronic networking activities in Asia.
- Strengthening of Asia-wide collaboration. On ACFA initiative, KEK is now proposing to initiate, with the kind support from JSPS (Japan Society for the Promotion of Science) extension of the multilateral Core University Collaboration program in Asia region. The first multilateral core university program is likely to start between Japan-Korea-China-Taiwan-Thailand-India from Japan Financial Year 2004.

ACFA Membership: ACFA membership is open to any active region in Asia. The new active region can join ACFA by proposing and identifying its representative to ACFA Chairman in a written statement. The proposals are discussed and approved in Plenary ACFA meetings. Present ACFA members include Australia, Bangladesh, China, India, Indonesia, Japan, R O Korea, Malaysia, Pakistan, Singapore, Taiwan, Thailand and Vietnam.

Structure of ACFA: ACFA consists of the Plenary ACFA, Chairman, Vice-Chairman, Secretary and Deputy Secretary and Working Group/Study Group.

Plenary ACFA Meetings: A Plenary ACFA meeting is normally held every year. The decisions on all the ACFA activities are based on the consensus of the representatives from all the participating regions. Every participating region appoints its representatives, maximum three, to the Plenary ACFA from the fields of Accelerator Physics, Particle and Nuclear Physics and Synchrotron Radiation and Spallation Neutron Sources.

Officers of ACFA: The Plenary ACFA elects from its participating region a Chairman and a Vice-Chairman, who then nominate respectively a Secretary and a Deputy Secretary. The Chairman is responsible for the day-to-day running of ACFA and when Chairman is absent the Vice-Chairman is responsible. The Secretary and the Vice-Secretary carry out the office duties under the guidance of the Chairman. Each officer serves for a single term of two years. Upon completion of each term, the Vice Chairman and the Deputy Secretary become respectively the Chairman and Secretary for the succeeding term. Presently Dr. D.D. Bhawalkar is the ACFA Chairman and Prof. Shin-ichi Kurokawa is the Vice-Chairman. Mr. Satish Chandra Joshi and Prof. Setsuya Kawabata are the Secretary and Deputy-Secretary respectively for the term of 2003 - 2004.

The author of this article, ACFA secretary Dr. ***Satish Chandra Joshi***, works at the Center for Advanced Technology, Indore India.

Continuing the discontinuation a story of a special earthenware, Raku

The whole thing started by the meeting between Rikyu SEN (1522-1591) and Chojiro RAKU (?-1590) some 400 years ago. Rikyu, the most famous man of sophistication of the time, wanted to perfect his art of tea. He needed to make the 4-dimensional time and space for his tea ceremony to be the ultimate one when outside world was quite messy with repeated wars.

To get the maximum pleasure of drinking a cup of tea, he wanted a mental state free from everything else, such as social status, snobbism, haughtiness, boasting that would mar his tea ceremony (tea party, in fact). He not only requested humbleness regardless of participant's social statue, he also pursued his equipment for his tea ceremony to appear humble and simple. Rikyu wanted a tea bowl that does not brag about its own beauty, its high price, and so forth. Rikyu contradicts himself by requesting that the bowl to be of ultimate sophistication which could possibly be produced only by great artists. Chojiro, in response to Rikyu, produced quite a few tea bowls that fulfilled Rikyu's impossible request. His 'Chawan' (tea bowl) is a miracle, as it appears to be un-conspicious, un-insisting, just like a stone on the roadside, but when you really take a close look at it, one is totally astonished by its perfection and beauty.

Since then, the Raku family has been producing the Chawans with this spirit for the last 400 years over 15 generations. Their tea bowls are called "Rakujyawan". I am sure that successors to Chojiro had to face grave difficulties in doing the family business, since the first generation, Chojiro, had perfected the 'art of the contradiction'. It is interesting to realize that no one in the

Raku family left a recipe describing the art of Raku-ware including how to mix the graze. Each successor must come up with his graze mixture, shape and so forth on his own. Each generation must reinvent his art. The art of Raku-ware has been kept alive and appreciated under this unbearable burden on each generation of the Raku family. No successors to Chojiro reproduced tea bowls identical to the Chojiro's. Just imagine to be a physicist studying under a super physicist who had solved all conceivable problems in physics of the time. "What can I do?" would have been the question each generation of the Raku family must have asked. As this is a soul searching process, Rakuchawans created by each Raku generation reflected the mental state of the era. During the war-laden era of Chojiro, tranquility was the most sought after, and his Rakuchawan expressed tranquility. Getting into Edo era when peace is assured, Rakuchawan expressed calmness with a bit of subtle delight. Getting into the computer era, Rakuchawan, created by present Mr. Kichizaemon XV, expresses warm human joy although very subtle. I would say that the great DNA of Chojiro is alive and kicking. What are common to the creations of each generation are: the temperature to fire is relatively low (around 1200 deg.C) to keep porous texture that makes its low thermal conductivity. It is very comfortable to hold the Rakuchawan with hot tea inside. Rakuwares are made solely by hands without using a wheel which enables to create the shape not obtainable through using a wheel. The shape and texture demonstrate human warmth. When you hold the Chawan, you feel like you are hugging someone.

Each generation received their own fame through their own effort. Present generation, Mr. Kichizaemon Raku, XV, is of no exception. He studied at Academia Romana for two years, received a visiting fellowship from Princeton University, organized art exhibitions all over the world, including England, Belgium, Italy, France and Holland, have received numerous awards. At his age of 54, he is very active in developing the art of the family tradition, including teaching and writing in addition to his creating Raku-wares in his own style. He received the Minister prize awarded by the Ministry of Economy, Trade and Industry for his recent book "Raku: Kakunyu XIV and Kichizaemon XV". It is a book I was deeply moved. (Unfortunately, no translation of the book is available at the moment.) He is multi-talented.

It should be noted that the popular "RAKU" well known in the world is a spin off of this family creations. "RAKU" technique of low temperature firing, subtleness and so forth has been used by many ceramists having been moved by seeing the original Rakuware, but they are not quite the same things. They do not inherit the difficulties that Raku family have been facing. (T.K.O.)

Events

[**Numbers in bracket**] are number of participants from overseas/from Japan

February 12, 2003
ACFALC Symposium was held at Tsukuba International Congress Center (EPOCAL). [45/270]

February 13
International Steering Committee for the Promotion of Linear Collider was held at Tsukuba International Congress Center.

February 13-14
ICFA Meeting was held at EPOCAL.

February 23-March 1
International Symposium and Workshop on Hadron Spectroscopy, Chiral Symmetry and Relativistic Description of Bound Systems was held at KEK and Nihon University.

February 25-28
Accelerator and Particle Physics Institute was held at APPI (Iwate). [12/33]

March 3-7
International Conference on Low Energy Antiproton Physics (LEAP03) was held at Yokohama.

March 10-14
Workshop on Accelerator Operation (WAO2003) was held at KEK. [55/45]

April 4
Professor M. J. Veltman, the 1999 Nobel Prize Laureate, gave a talk at KEK.

April 8
"International Hanami party" was held under the KEK Cherry blossoms.

April 19
K2K-II Commencement Ceremony was held at KEK, The Honorable John H. Marburger III, Science Advisor to the President of United States of America and Professor Koshiba, the 2002 Nobel Prize Laureate, were among the participants.

May 9
KEK Concert "The History of Harpsicode Music" by Natsuko Uemura

May 28
KEK 30tn Anniversary ceremony was held at GAKUJUTSU SOGO Center in Tokyo. Participants were over 350.

Jun 18-20
The 14th Summer School of the Graduate University for Advanced Studies was held in KEK. and 95 students and young researchers attended.

Jun 26
KEK Concert "Amazing Grammophone" by Kaichi Hagiwara

July 2-3
KEK-UCLA Joint Workshop on KEK Archives Project was held at KEK. [4/30]


February 13-14


April 19


May 9

July 7-11
FFAG Accelerator Workshop (FFAG03) was held at KEK. [11/29]

July 15-19
The XXI International Symposium on Lattice Field Theory was held at the Tsukuba International Congress Center (EPOCAL). [229/93]

July 31-August 7
The 28th International Cosmic Ray Conference was held at Tsukuba International Congress Center.

August 5-7
Ancient slat pan was discovered during the construction of JPARK. KEK invited local elementary school students to participate the excavation study.

September 3
KEK Concert "The Pleasure of Flute Music" by Keiichi KONDO and Mayumi Ogawa.

September 15
Annual KEK Open House was visited by over 3,900 visitors.

October 30-31
International Symposium on Neutron Science of J-PARC was held at KEK. [41/96]

November 25-30
The 4th International Workshop on Neutrino Beams and Instrumentation (NBI2003) was held at KEK. [23/40]

November 28
KEK Concert "The Color of the Trumpet Sound" by Kana Madarame.

November 30-December 5
The 6th International Workshop on Spallation Materials Technology was held at Shonan Village Center and Graduate University for Advanced Studies (Hayama, Kanagawa). [29/45]

December 1-5
The 9th International Workshop on Advanced Computing and Analysis Techniques in Physics Research (ACAT03) was held at KEK. [75/35]

February 16-20, 2004
Accelerator and Particle Physics Institute was held at APPI (Iwate). [22/14]

February 23-24
The 4th Korea-Japan meeting on Neutron Science was held at KEK.

February 23-25
Neutrino Mass and Seesaw Mechanism was held at KEK.


August 5-7


September 3


September 15

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