Shin-ichi Kurokawa, KEK

Modified Proposal dated January 31, 2015 at 22nd ACFA meeting  
  
Let me propose that prize d)

d) for the best and most meritorious student-posters awarded to 2 students whose works are presented in the special student poster session.

be moved under the jurisdiction of IPAC Asia Program Committee and instead create a new prize:

d) A prize, awarded to a student registered for a PhD or diploma in accelerator physics or engineering or to a trainee accelerator physicist or engineer in the educational phase of their professional career, for the quality of work and promise for the future. Applicants will be judged on the quality of the work submitted to the conference. The winner will receive a certificate, and a cash prize and will have the opportunity to make a short oral presentation during the Accelerator Prizes Special Session during IPAC Asia.

The consensus of the last ACFA meeting was:

Prize a) be named after Professor Xie, b) after Professor Nishikawa. By creating this new prize, let me propose that prize c) be named after Professor Kim and d) after Professor Oliphant.

January 17, 2014, at the 21st　ACFA meeting in Melbourne

Shin-ichi Kurokawa, KEK

Proposal to give names to IPAC Asia ACFA prizes

I propose herewith to give names to IPAC Asia ACFA prizes.

ACFA offers the following four awards during the International Particle Accelerator Conference (IPAC) taking place in Asia

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The awards are for individuals:

a) for outstanding work in the accelerator field with no age limit,

b) for a recent outstanding achievement in the accelerator field with no age limit,

c) in the early part of his or her career, having made a recent significant, original contribution to the field,

d) for the best and most meritorious student-posters awarded to 2 students whose works are presented in the special student poster session.

My proposal is to give names to the prizes a), b), and c) after the prominent accelerator scientists in Asia. By discussing a few of my colleagues, I propose that:

Prize a) be named Jia Lin Xie Prize, Prize b) Tetsuji Nishikawa Prize, and Prize c) either Mark Oliphant Prize or Hogil Kim Prize.

For your information I attach the present rule of ACFA prizes and biographies of Xie, Nishikawa, Oliphant, and Kim.

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Professor Jia Lin Xie’s Scientific Career:

Prof. Jia Lin Xie (謝家麟)　was born in 1920 in Harbin, China. He graduated from physics department of Yangjing (燕京) University in 1943, and obtained PH.D in Stanford University in 1951. In 1955, as

chief leading scientist, with his colleagues in Chicago Medical Center, he constructed the first cancer treating electron machine in the world.

In 1955, he returned from United States to China.

After returning, he organized a group to construct the first 30 MeV

Microwave electron linac, started from key components’study, such as klystron and 3 m long S-band accelerating structure.

At the end of 70’s, he acted as the leading scientist for “87”project’s R&D, a 50GeV synchrotron in Beijing.

In the beginning of 80’s, he was nominated as the first director of Beijing Electron Positron Collider (BEPC) at IHEP, and BEPC was successfully completed in 1988. During the BEPC project, he made

many important decisions with Chinese colleagues, such as Collider and Synchrotron radiation machines combined to BEPC storage ring.

In the middle of 80’s he led a group working on a linac based free electron laser (BFEL), and obtained “863”project supports. In 1993, BFEL was successfully lasing with saturation, which is the first linac

based free electron laser in Asia.

In 2000, he proposed a concept of compact linac with klystron works as both electron source and rf source. After 4 years hard work, the principal was proofed, and the accelerator obtained patent of China.

In Professor Jia Lin Xie’s scientific career, he pay great attend to his Ph.D students and young generation training, and also international collaborations, which has a great impact afterwards.

As for scientific vision, as always, he pays a great attention to new frontier of high energy physics accelerators and technologies, such ILC, superconducting rf accelerator technologies and laser plasma acceleration.

In his 90’s old age, he still keeps working and make necessary contribution.

Tetsuji Nishikawa 1926–2010:

Tetsuji Nishikawa, former director-general of KEK,

showed an extraordinary talent as a physics student and became a professor of physics of the same university in 1961 at the age of 34.

He was a man of extraordinarily wide interests. His initial research was in the field of atomic and molecular physics using microwave technology but he gradually shifted towards accelerator science and high-energy physics. One of his contributions to accelerator physics is the invention of the alternating periodic structure (APS) for linear accelerators, work done while he was at Brookhaven National Laboratory (1964–1966). He became a world expert on beam dynamics of linear accelerators.

He was a man of extraordinary patience. After a decade of negotiations with the government and of tireless discussions within the scientific community during the 1960s, high-energy physicists, ledby Shigeki Suwa and Nishikawa, finally succeeded in starting KEK (the National Laboratory for High Energy Physics, now called the High Energy Accelerator Research Organization) in 1969 and in constructing the 12 GeV proton synchrotron. One of the most important contributions that this accelerator has made to high-energy physics is the first long-baseline neutrino experiment in which a neutrino beam was sent to the Kamiokande facility 200km from KEK. This finally confirmed the oscillation of muon-neutrinos to electron-or tau-neutrinos.

Moreover, KEK became a model in Japan for the development of national inter-university research institutes. Later, many research laboratories in different disciplines were created with the same organizational and management structure as KEK.

He was a man of extraordinary insight into the future. Nishikawa supported the development of a neutron beam from the KEK proton synchrotron, as initially suggested by a group at Tohoku University led by Motoharu Kimura. The KEK parasitic neutron facility was completed in 1980 and eventually upgraded substantially in the current Japan Proton Accelerator Research Complex (J-PARC).

Nishikawa also realized the importance of hadron beams in cancer treatment and, together with the medical school of Tsukuba University, he constructed a cancer-treatment facility at the booster synchrotron (500 MeV). The success of this facility continued with the construction of the National example is his insight into synchrotron radiation facilities. The world’s first dedicated synchrotron radiation facility was built at the Institute for Nuclear Study in the University of Tokyo, based largely on the foresight of Taizo Sasaki. Nishikawa decided to build the KEK Photon Factory, together with Kazutake Kora, with strong support from the synchrotron radiation user-community. The facility was completed in 1982.

He was a man of extraordinary wisdom in laboratory management and project design. After the completion of the KEK Photon Factory he decided to build TRISTAN, the world’s highest energy e+e–collider. The KEK photon factory injector linac was used as an injector for TRISTAN, which was completed in 1986. The collider was later transformed into a B-Factory, namely, KEKB.

He was an extraordinary human being. Together with the

Shigeki Suwa, he was one of the founding fathers of KEK and the Japanese high-energy physics community. What he accomplished in Japan is comparable to what Panofsky did in the US.

Indeed, Nishikawa and Panofsky were good friends and together, more than 30 years ago, they initiated the US-Japan Collaboration scheme. They also worked hard to launch the Superconducting

Super Collider; unfortunately, the project was cancelled during its construction.

Tetsuji Nishikawa passed away on 15 December 2010.

Sir Mark Oliphant AC, KBE, FRS

Born Marcus Laurence Elwin Oliphant in Adelaide in 1901, the eldest son of a public servant, he rose to prominence as an inventive and brilliant physicist and carried his impressive achievements over into public life. As a physicist his crowning achievements include the invention of the synchrotron particle accelerator, the discovery of tritium and helium-3 and overseeing the development of radar. In public life and as a scientific leader he held several significant positions. These included the founding Directorof the Research School of Physical Sciences at the newly constituted Australian NationalUniversity (1950) and Governor of South Australia (1972) – a role in which he was very popular with the public. However, the achievement Oliphant was most proud of was the role he played in founding the Australian Academy of Science of which he was its first President in 1954.

Like so many Australian scientists, Oliphant travelled overseas to make his mark in the world. He returned later in life bringing back his “fire in the belly” to inspire people to greater heights in his home country. After completing his education at Adelaide University, he joined the famed Cavendish Laboratories at Cambridge in 1927, which was then led by Ernest Rutherford - a fellow Antipodean who was to become a father figure to Oliphant. Together they were pioneers in the new field of Nuclear Physics.

Their careful experiments on the “basement accelerator” that Oliphant designed and built established him as an accelerator physicist and enabled them to split the atom to discover the two new isotopes tritium and helium-3. In 1937 he took up his own Professorship at Birmingham University where he led the team that invented the magnetron, a compact power source that made it possible to carry radar in aircraft.

In 1941 he went to the US to persuade their government to hasten

a fission bomb program resulting in the Manhattan Project which he later joined. The use of the atomic bomb on civilians horrified him into becoming a lifelong “belligerent pacifist”.

While in the US, Oliphant was deputy to Ernest Lawrence at the University of California Radiation Laboratory. On assignment at the experimental electromagnetic separation plant at Oak Ridge, Tennessee, he did many night shifts during which time he penned a memo titled “The Acceleration of Particles to Very High Energies.” In this little known letter to the Directorate of Atomic Energy, UK, he outlined his “new method” - the principle of the synchrotron accelerator.

Using the newly invented principle Oliphant later designed and built

a 1 GeV proton synchrotron in Birmingham. At the heart of the Australian Synchrotron is a 3 GeV electron synchrotron accelerator which has been in operation since 2007.

Sir Mark Oliphant died in Canberra in 2000 aged 98.

Hogil Kim

Professor Hogil Kim was a prominent accelerator physicist, a Ph.D. on cyclotron research at University of Birmingham, U. K. in 1964. He conducted research and teaching at Lawrence Berkley National Laboratory (LBNL) and University of Maryland in the United States. He became the founding President of POSTECH, Korea in 1987, and he initiated the Pohang Light Source (PLS) project at POSTECH in 1988. Just before completing the PLS, he passed away accidentally during a sport event on campus in 1994. He was a pioneering leader promoting excellent education for the future generation through science and engineering.