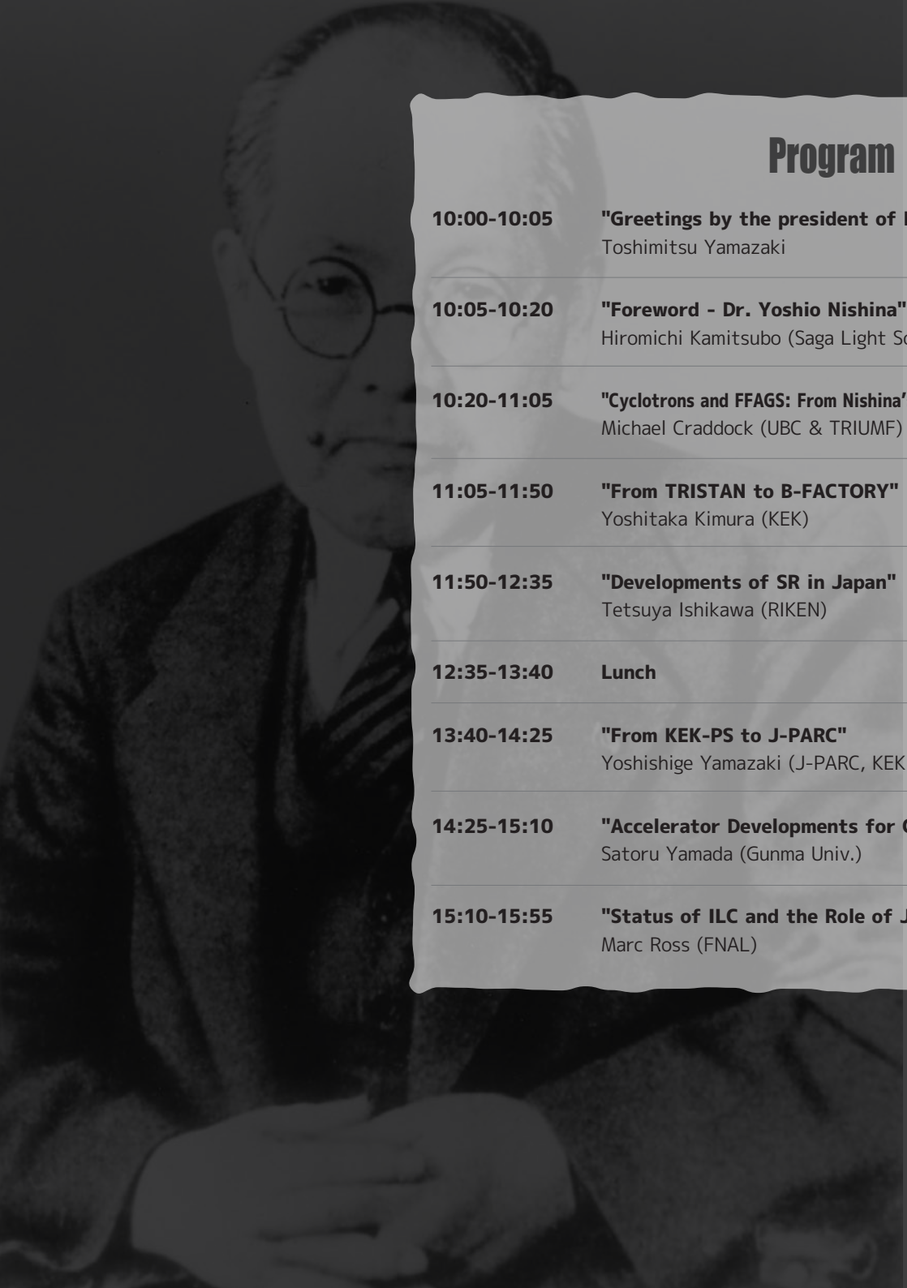


Program

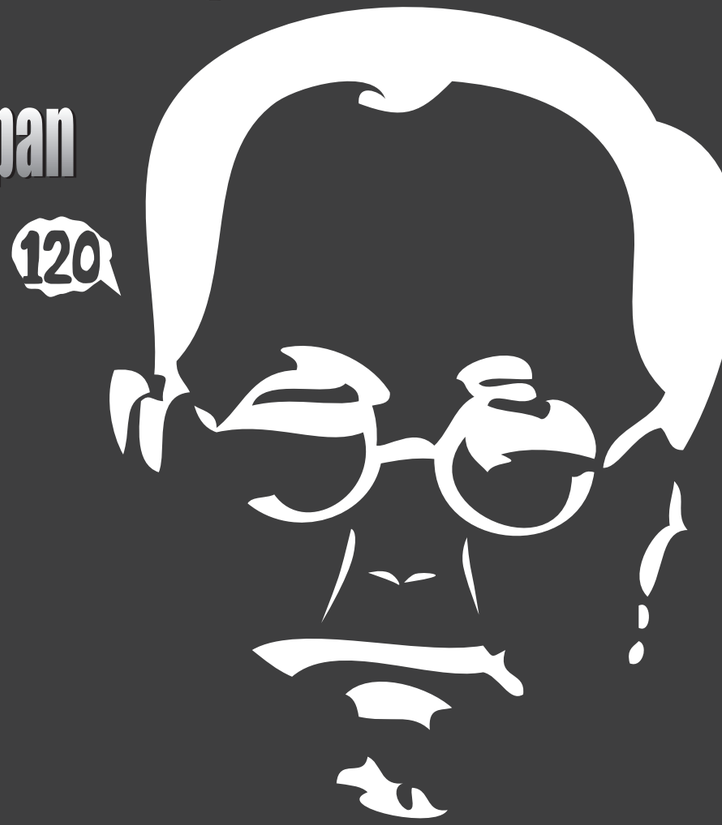
10:00-10:05	**"Greetings by the president of Nishina Memorial Foundation"** Toshimitsu Yamazaki
10:05-10:20	**"Foreword - Dr. Yoshio Nishina"** Hiromichi Kamitsubo (Saga Light Source)
10:20-11:05	**"Cyclotrons and FFAGS: From Nishina's Pioneering Work to RI-Beam Factory"** Michael Craddock (UBC & TRIUMF)
11:05-11:50	**"From TRISTAN to B-FACTORY"** Yoshitaka Kimura (KEK)
11:50-12:35	**"Developments of SR in Japan"** Tetsuya Ishikawa (RIKEN)
12:35-13:40	**Lunch**
13:40-14:25	**"From KEK-PS to J-PARC"** Yoshishige Yamazaki (J-PARC, KEK & JAEA)
14:25-15:10	**"Accelerator Developments for Cancer Therapy"** Satoru Yamada (Gunma Univ.)
15:10-15:55	**"Status of ILC and the Role of Japan in Developing the ILC"** Marc Ross (FNAL)

Hosted by
RIKEN NISHINA CENTER
RIKEN Nishina Center for Accelerator-Based Science
IPAC' 10 Organizing committee
Sponsored by
Nishina Memorial Foundation

IPAC'10

IPAC'10 Special Lectures to Commemorate the 120th Anniversary of Birth of Yoshio Nishina

Dr. Nishina and advancement of particle accelerators and their applications in Japan



Date
May 23 (Sun), 2010

Time
10:00 – 16:00

Venue
Main Hall, Kyoto International Conference Center
http://www.icckyoto.or.jp/en/index.html
phone:075-705-1234

Greeting

Greetings by the president of Nishina Memorial Foundation

Toshimitsu Yamazaki

1986 Director, Institute for Nuclear Study, University of Tokyo
1995 Professor Emeritus, University of Tokyo
2005 Member of the Japan Academy
2005 President, Nlshina Memorial Foundation
2009 Person of Cultural Merit

Foreword - Dr. Yoshio Nishina

Hiromichi Kamitsubo (RIKEN)

1961 Ph. D. University of Tokyo
1971 Chief Scientist, RIKEN
1976 Professor, Institute of Nuclear Study, University of Tokyo
1989 Leader of JAERI-RIKEN Spring-8 Project Team.
1992 Executive Director, RIKEN
1998 Vice president, JASRI and Director, JASRI Research Sector.
2003 Director, RIKEN Wako Institute and Discovery Research Institute
2004 General Management Director, Saga Light Source
2006 Special Advisor, RIKEN

Awards
1999 Medal with Purple Ribbon
2006 The Order of the Sacred Treasure, Gold Rays with Neck Ribbon

Lecture 01 Cyclotrons and FFAGS: From Nishina's Pioneering Work to RI-Beam Factory

The first cyclotron to operate outside the USA was built by Professor Nishina's group at RIKEN (1935-7). It was quickly followed by three more Japanese machines, establishing a tradition that has produced many important research cyclotrons, culminating with the world's most powerful - the superconducting SRC at the RIKEN RIBF.
Japanese scientists have also been in the forefront of the development of Fixed-Field Alternating-Gradient (FFAG) accelerators - from the first suggestion by Tihiro Ohkawa in 1953 to Yoshiharu Mori's construction of the first proton FFAG in 2000.

Michael Craddock (UBC&TRIUMF)

1961 M.A. Oxford University
1964 D. Phil. Oxford University
1961 Scientific Officer, Rutherford High Energy Lab
1964 Assistant, Associate and Full Professor, University of British Columbia (~2001)
1968 Group Leader, TRIUMF
1981 Head, Accelerator Research Division, TRIUMF
2001 Professor Emeritus, University of British Columbia

Lecture 02 From TRISTAN to B-FACTORY

TRISTAN(1986-1995) is an electron-positron collider for top quark search. The center of mass collision energy was 50-64 GeV, then highest in the world. To attain the required accelerator performance, intensive innovative R&D effort had to be made in such technologies as superconducting RF and magnet, high power RF components, vacuum, instrumentation, etc. B-factory, KEKB is an asymmetric energy (8 GeV + 3.5 GeV) electron-positron collider for observation of CP violation in B-meson decays. The facility was constructed in 1998 by maximally utilizing the TRISTAN resources, and has achieved the world highest luminosity of 2.1×10^{34} /cm^2/s. In 2001 the Belle experimental group successfully observed large CP violation in B-meson decays, which eventually lead to Nobel Prize for Kobayashi & Maskawa in 2008.

Yoshitaka Kimura (KEK)

1978 Professor, Accelerator Department, KEK
1997 Director, Institute of Materials Structure Science, KEK
2003 Professor Emeritus, KEK
2010 Senior Advisor, KEK

Lecture 03 Developments of SR in Japan

Synchrotron radiation (SR) facilities and researches in Japan are reviewed. Started in the parasitic use of the electron synchrotron st the institute for nuclear science of the university of Tokyo, the SR community constructed SOR ring, Photon Factory, and SPring-8 in collaboration with the accelerator community. The latest development is the x-ray free electron laser facility which is nominated as one of the 5 key technologies of national importance.

Tetsuya Ishikawa (RIKEN)

1983 Research Associate, Photon Factory, KEK
1989 Associate Professor, University of Tokyo
1995 Chief Scientist, RIKEN
2006 Director, RIKEN SPring-8 Center
2010 Director, RIKEN Harima Institute

Lecture 04 From KEK-PS to J-PARC

The user experiments of J-PARC have just started. The J-PARC, which stands for Japan Proton Accelerator Research Complex, comprises a 400-MeV linac (at present 180 MeV, being upgraded), a 3-GeV Rapid-Cycling Synchrotron (RCS), and a 50-GeV Main Ring (MR), which is now in operation at 30 GeV. The RCS will provide the muon-production target and the spallation-neutron production target with a beam power of 1 MW (at present 120 kW) at a repetition rate of 25 Hz. The muons and neutrons thus generated will be used for materials science, life science and others, including industrial applications. The beam fast extracted from the MR will generate neutrinos to be sent to the Super KAMIOKANDE detector located 300-km west. The slowly extracted beam will generate Kaons for Hypernuclei experements, Kaon rare decay experiments and so forth. This unique accelerator scheme and its usage scheme originate from those of KEK-PS. It can be said that the J-PARC is an upgraded version of KEK-PS in both the beam energy and beam power. It will be detailed how the world-class machine of J-PARC has developed from KEK-PS.

Yoshishige Yamazaki (J-PARC,KEK&JAEA)

1969 Batchelor of Engineering (Applied Physics), University of Tokyo
1974 Ph. D. in Physics, University of Tokyo
1991 Professor, Accelerator Division, KEK
1994 Director, Accelerator Division, KEK; for KEKB
2001 Group Leader of J-PARC Accelerator, KEK & JAEA
2006 Deputy Director, J-PARC Center, KEK & JAEA
2009 Advisor, J-PARC Center, KEK & JAEA

Lecture 05 Accelerator Developments for Cancer Therapy

Treatments of cancers with charged particle beams are one of the most fruitful applications of high energy accelerators. Japan has become world leader in this field after completion of the dedicated heavy ion accelerator, HIMAC. Brief history of the accelerator developments will be presented.
More than 5,000 patients are treated with carbon ions from “HIMAC” at National Institute of Radiological Sciences since 1994. Clinical data of the cancer treatments show excellent results especially against photon-resistant cancers.

Satoru Yamada (Gunma Univ.)

1976 Assistant, Institute of Nuclear Study, University of Tokyo
1987 Senior Researcher, National Institute of Radiological Sciences
2002 Director, Division of Accelerator Engineering, National Institute of Radiological Sciences
2006 Professor, Gunma University Heavy Ion Medical Research Center

Lecture 06 Status of ILC and the Role of Japan in Developing the ILC

The ILC design brings together the needs of the world's particle physicists to extend their reach beyond LHC and the capabilities of the accelerator community to deploy superconducting RF technology for this purpose. In this talk we will describe the state of the art of the technology needed to build a high luminosity linear collider and show the global basis for the technology. The latter is a necessary component for the realization of a strongly multi-lateral international science project. To this end, the ILC Global Design Effort, (GDE), was established in 2005. To maintain adequate inter-regional balance, the GDE is not hosted by any single institution and includes representation from each interested institution. Japanese scientists and institutions have enthusiastically supported this scheme from its beginning and have had a significant role in its development.

Marc Ross (FNAL)

1982 Ph. D. in Experimental High Energy Physics, Northwestern University
1984 SLAC Linear Collider construction Project team
1998 Member of next generation linear collider projects at SLAC, DESY and KEK
2001 Next Linear Collider Test Accelerator (SLAC) Manager
2006 Fermilab Technical Division Head
2007 Member of the ILC Project Manager Troika

Awards
1993 US Particle Accelerator School Prize

HISTORY OF DR.NISHINA ▶▶

1890 Born in Okayama prefecture as the fourth son of Arimasa Nishina.
1894 Entered Shinjyo Elementary School (April)
1897 Entered Shoseki Upper Elementary School (April)
1901 Entered Okayama Prefectural Junior High School (April)
1904 Entered the No. Six High School (Sept)
1905 Entered Faculty of Electrical Engineering of Tokyo Imperial University (April)
1910 Graduated from Tokyo Imperial University and became a staff member at RIKEN (July)
1914 Left Japan to do research in Europe (April)
1915 Returned from Europe (Dec.)
1917 Received Doctorate of Science (Nov.)
1918 Became a Chief Scientist at RIKEN (July)
1921 A small cyclotron (26inches, 28ton) was completed (April)
1923 A Large cyclotron (60inches, 210ton) was completed (Dec.)
1925 Died of liver cancer in Tokyo (Age 60, Jan. 10)
1928 Became the first president of RIKEN Corporation (March)
1930 Awarded the Order of Culture by the Emperor of Japan (Feb.)
1931 Became the 4th Director of RIKEN (Nov.)
1937 The small cyclotron was destroyed by the air raid on Tokyo (April)
1941 Research team was sent to Hiroshima and Nagasaki after the new bombs were confirmed as atomic bomb (Aug.)
1943 The large cyclotron was destroyed and dumped into Tokyo Bay by the US military forces (Nov.)
1945 Dr.Nishina and advancement of nuclear accelerators and their uses in Japan

HISTORY OF JAPAN AND RIKEN ▶▶

1894 The First Lower House general election was held (July)
1897 The Sino-Japanese War broke out (Aug.)
1904 The Russo-Japanese War broke out (Feb.)
1914 Japan entered World War I (Aug.)
1917 The Institute of Physical and Chemical Research was established as the first private scientific foundation in Japan (March)
1918 First radiobroadcast was aired in Japan (March)
1923 The Great Kanto Earthquake struck (Sept.)
1925
1930
1931
1937 The Sino-Japanese war broke out (July)
1941 The Pacific War broke out (Dec.)
1943
1945 World War II ended (Aug.)
1946 Promulgation of the Japanese Constitution (Nov.)
1948 The Institute of Physical and Chemical Research as scientific foundation was disbanded, and restarted as RIKEN Corporation
1949 Dr. Hideki Yukawa received the Nobel Prize in Physics (Nov.)
1951 Japan-U.S. Security Treaty was signed (Sept.)