



PREFACE

The seventh International Particle Accelerator Conference, IPAC'16, took place at the BEXCO Convention Center, Busan, Korea, from Sunday to Friday, May 8-13, 2016. More than 1200 full time delegates from approximately 35 different countries on all continents attended. The Pohang Accelerator Laboratory (PAL), the Korea Multi-purpose Accelerator Complex, the Atomic Energy Research Institute (KOMAC, KAERI), the Korea Heavy Ion Medical Accelerator, the Korea Institute of Radiological and Medical Sciences (KHIMA, KIRAMS) and the Rare Isotope Science Project, Institute for Basic Science (RISP, IBS) hosted the conference. The Ministry of Science, ICT and Future Planning, the Korea Tourism Organization, and the Busan Tourism Organization provided support. It was organized under the auspices of the Asian Committee for Future Accelerators (ACFA), the European Physical Society Accelerator Group (EPS-AG), and the American Physical Society Division of Physics of Beams (APS-DPB).

The attendance of 76 young scientists from all over the world was made possible through the sponsorship of societies, institutes and laboratories worldwide (in alphabetical order): ALBA-CELLS, AS, CEA Saclay, CERN, Cockcroft Institute, DESY, DIAMOND, ESRF, ESS, GANIL, GSI/FAIR, HZB, HZDR, IBS/RISP, IEEE-NPSS, IHEP, IMP, INFN, IN2P3, JAI, KAERI/KOMAC, KEK, KIRAMS/KHIMA, NAF-PPAS, NSRRC, PAL, PSI, RIKEN Nishina, RIKEN SPring-8, SOLEIL, SSRF, STFC. The organizers of IPAC'16 are grateful to all sponsors for their valuable support.

Won Namkung (PAL), Chair of the Organizing Committee (OC), In Soo Ko (PAL), Chair of the Scientific Program Committee and Kyung-Ryul Kim (PAL), Chair of the Local Organizing Committee (LOC), opened the conference.

Sachio Komamiya (ICEPPE) opened the scientific program with a presentation on *The International Linear Collider, the Latest Status towards Realization*, followed by *Beam Commissioning of PAL-XFEL* presented by Jang Hui Han (PAL). The other plenary talks on Monday morning were presented by Mikael Eriksson (MAX-lab), Wim Leemans (LBNL) and Rogelio Tomas (CERN), respectively, on *Beam Commissioning of MAX-IV, Limits and Possibilities of Laser Wakefield Accelerators and a Review of Linear Optics Measurements and Corrections in Accelerators*.

Inspiring closing presentations were delivered by Sunchan Jeong (IBS) on *Progress of the RAON Heavy Ion Accelerator Project in Korea*, Mats Lindroos (ESS) on *ESS Progressing into Construction*, and Wen-Long Zhan (CAS, Beijing) on *Accelerator Driven Sustainable Fission Energy*.

Ninety-eight invited and contributed oral presentations of very high quality were made during the week, including an unusual "Entertainment" presentation by Zev Handel (U. Washington, Seattle) entitled *Learn to Read Korean: An Introduction to the Hangul Alphabet*.

The IPAC'16 Scientific Program Committee (SPC) developed the scientific program. It was a truly international body with members coming 50% from Asia and 50% from Europe and the Americas. The conference program spanned four and a half days, with plenary sessions on Monday and Friday mornings, and Thursday afternoon. All other sessions were composed of two oral sessions in parallel, with the poster sessions scheduled alone at the end of each afternoon. There were 47 invited talks and 51 contributed oral presentations; 1300 posters were scheduled during the lively poster sessions at the end of each afternoon. These proceedings contain the reports of almost 1270 contributions.

An industrial exhibition took place during the first three days of the conference. Industrial exhibitors (86 companies) occupied 92 booths and presented their high technology products and services to the delegates in an excellent atmosphere conducive to discussions.

During the Accelerator Awards Session, the ACFA/IPAC'16 best student poster prizes were awarded to **Mattia Checchin, Fermilab, USA** for the contribution entitled *Ultimate Gradient Limitation in Niobium Superconducting Accelerating Cavities* (WEPMR002) and **Claudio Torregrosa, CERN, Switzerland** for his contribution entitled *The HiRadMat 26 Experiment: Exploring High-density Materials Response at Extreme Conditions for Antiproton Production at CERN* (THPMY023).

The Mark Oliphant 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, was awarded to **Spencer Jake Gessner, SLAC, USA** for his work *Demonstration of the Hollow Channel Plasma Wakefield Accelerator (THPPA01)*.

The Hogil Kim Prize for a recent, significant, original contribution to the accelerator field, awarded to an individual in the early part of his or her career was awarded to **Sam Posen, Fermilab, USA** “in recognition of his discovery in the development of a high gradient superconducting radio frequency cavity using Nb₃Sn film coating, and the demonstration of outperforming traditional Nb cavity.”

The Nishikawa Tetsuji Prize for a recent, significant, original contribution to the accelerator field, with no age limit was awarded to **Gwo-Huei Luo, NSRRC, Taiwan**, “in recognition of his accomplishments and leadership in the management, construction and successful commissioning of the Taiwan Photon Source (TPS), which has exceeded its design goal as one of the world’s brightest light sources.”

The Xie Jialin Prize for outstanding work in the accelerator field, with no age limit was awarded to **Derek Lowenstein, BNL, USA**, “for his many years of leadership in the accelerator field starting from the AGS Booster, which led to world-record proton intensity in the AGS, to the BNL Relativistic Heavy Ion Collider (RHIC), which is a highly successful accelerator facility with its unprecedented flexibility and outstanding luminosity performance.” Wolfram Fischer, BNL received the prize on behalf of Derek Lowenstein, who was unable to attend due to the recent extensive flooding in Texas.

The Chair of the Prizes Selection Committee, Shin-ichi Kurokawa (COSYLAB and KEK), awarded the ACFA/IPAC’16 prizes. In Soo Ko (PAL), Chair of the SPC, presented the student poster prizes.

The proceedings of IPAC’16 are published on the JACoW site (www.jacow.org). The processing of the electronic files of contributions prior to, during and immediately after the conference was achieved by the JACoW "seasoned experts", who also trained less experienced volunteers from the JACoW International Collaboration. The team was composed of 30 persons from laboratories worldwide, many accomplishing several different tasks covering IT (setting up the computers and network), processing of contributions and transparencies, presentations management, poster session management, author reception and cross-checking of titles and authors. Thanks to the work of this dynamic team and the careful preparations and guidance of Christine Petit-Jean-Genaz (retired, CERN), Kyung-Sook Kim (PAL) and Dong-Eon Kim (PAL), a pre-press version with close to 1270 contributions was published at mid-day on the last day of the conference. The final version, with the invaluable assistance of Volker Schaa, former Chairman of JACoW, was published at the JACoW site just two weeks after the conference. This is yet another impressive record set by the JACoW Collaboration, which is sincerely grateful to the supervisors of all the whole team, releasing them from their usual duties.

The success of IPAC’16 was due in great part to the truly excellent collaboration between the international teams of the OC and the SPC, and the LOC. Membership of the LOC, under the leadership of Kyung-Ryul Kim (PAL) included the following staff from PAL in alphabetical order: Yohan Ahn, Sukhyun Jin, Heung-Sik Kang, Dong Eon Kim, Kyung Sook Kim, Nayoung Kim, Dongjin Kim, Ghyung Hwa Kim, Sangbong Lee, Eun Hee Lee, Miso Park, Younguk Sohn, and Haeryong Yang. The LOC was completed by Ky Kim from KOMAC/KAWRI, Geun-Bum Kim from KHIMA/KIRAMS, Yeon Sei Chung from RISP/IBS, Ju Namkung, and Christine Petit-Jean-Genaz formerly of CERN.

The high levels of participation and enthusiasm shown at IPAC’16, the third IPAC taking place in Asia, clearly indicate the strong mandate for the International Particle Accelerator Conference series from the worldwide accelerator community. May future events be even more successful than this one. The eighth IPAC will return to Europe and take place in Copenhagen, Denmark. We are convinced that the collaboration among the three regions, steadily enhanced in recent years, will continue to grow to the benefit of IPAC and the accelerator community worldwide.

Won Namkung, PAL, Chair of the IPAC’16 Organizing Committee