

## Preface: NA-PAC 2013 Conference

LBNL, SLAC, and UCLA co-organized the 2013 North American Particle Accelerator Conference (NA-PAC'13) in Pasadena, California from September 29 to October 4, 2013 at the Pasadena Convention Center, located 1.5 miles east of the California Institute of Technology campus. This was the 25<sup>th</sup> in the series of Particle Accelerator Conferences, and the second of the regional North American PAC conferences, sponsored by the IEEE Nuclear and Physics Plasma Sciences Society and the APS Division of Physics of Beams. The regional North American PACs alternate with IPAC when is located in the Americas on a three-year cycle. A Local Organizing Committee, led by Chan Joshi, organized the local conference affairs and coordinated through Centennial Conferences.

NA-PAC'13 attracted 535 accelerator scientists, engineers, and students, and 49 industrial exhibitors. Approximately 12% of the participants came from Europe, and 8% from Asia. The event also continued the traditional strong emphasis on all aspects of accelerator science and technology by providing the opportunity for many oral and poster presentations. The scientific program additionally emphasized industrial and medical applications of accelerators and their benefits to society. Two new sets of dedicated sessions on Medical and Industrial Applications were introduced, with authoritative presentations. A wealth of diversity of accelerator research was covered in 60 invited talks, 70 contributed oral presentations, and 377 posters through the five days of the conference.

Regardless of its newly acquired regional status, the Scientific Program Committee of NAPAC'13 designed an exciting scientific program with the view of a world stage of accelerator science. Four plenary talks illuminated major demands and challenges facing the field of accelerator science. The conference opened with a talk from Stuart Henderson (Fermilab) on a *Review of the Possible Projects Towards a Higgs Factory*, a particularly relevant topic given the announcement of discovery of the Higgs boson at the LHC earlier in the year. This was followed by a talk from Alexander Lin (UPenn) on *Demands and Perspectives of Hadron Therapy*, an exciting and evolving application area for accelerator development. The conference closed with two more plenaries: Bob Hamm (R&M Technical Enterprises) speaking on *Current & Future Industrial Applications of Accelerators*, and Claudio Pellegrini (SLAC) speaking on *Challenges and Opportunities for X-Ray Free Electron Lasers*.

Continuing with the successful introduction of tutorial sessions from NA-PAC'11 in New York City, four one-hour tutorials provided introductory knowledge for exciting areas of present research. The tutorials were again very popular, filling the lecture hall at 8:30 in the morning Tuesday through Friday. Their topics included high-current and high-energy energy recovery linacs, physics of polarized protons, genetic algorithms and their accelerator applications, and femtosecond timing and synchronization for accelerator systems.

Two 2013 IEEE/NPSS Particle Accelerator Science and Technology (PAST) Awards were presented by Stan Schriber to individuals who have made outstanding contributions to the development of particle accelerator science and technology. Alex Dragt (University of Maryland) was selected “for substantial contributions to the analysis of nonlinear phenomena in accelerator beam optics by introducing and developing map-based approach”, and Mark Hogan (SLAC) was selected “for leadership and scientific contributions in forging an unprecedented partnership between plasma-based and conventional particle accelerator science and technology.” Anna Grassellino (FNAL) received the 2013 PAST Doctoral Student Award for her dissertation work

that made significant “contributions to the fundamental understanding of the field dependent loss mechanisms in SRF cavities”.

Two U.S. Particle Accelerator School Prizes for Achievement in Accelerator Science and Technology were presented by Jean Delayen for outstanding achievements over the full range of accelerator physics and technology. Kwang-Je Kim (ANL) and Jean-Luc Vay (LBNL) were recognized for their original contributions. S.Y. Lee (Indiana University) was awarded a special USPAS Prize for Lifetime Achievement in Accelerator Physics and Technology.

NA-PAC’13 offered student travel grants, sponsored by APS DPB and IEEE, to 36 student participants. Fifty-eight students participated in a student poster competition during delegate registration on Sunday evening at the start of the conference. They competed for two awards for best posters, as judged by the members of the NA-PAC’13 scientific program and organizing committees. The winners were Jessica Shaw (UCLA), *Controlling the Divergence and the Divergence Growth in LWFA-Produced Electron Beams*, and JieXi Zhang (MIT/PSFC), *Design and Cold Test of a 17 GHz Overmoded PBG Accelerator Cavity*.

The proceedings for NA-PAC’13 are published on the JACoW website ([www.jacow.org](http://www.jacow.org)). There will be no hard copy volumes. Processing of contributions and transparencies prior to, during, and after the conference was performed by a team of 17 regulars and volunteers from the JACoW collaboration. Thanks to the dedicated, professional job accomplished by this team, a pre-press version of these proceedings was immediately available at the end of the conference. This final version, including presentation slides, is published at the JACoW site two months after the conference.

Steve Gourlay (LBNL), Conference Chair  
Alex Chao (SLAC), Scientific Program Chair