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Title: Particles and Nuclei International Conference (PANIC11) at MIT in July 2011

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The first Particles and Nuclei International Conference (PANIC11) in the LHC era brought 539 participants to the Massachusetts Institute of Technology from 24-29 July 2011. PANIC11 is the latest conference in a triennial series, which showcases recent progress worldwide in particle and nuclear physics. PANIC11 was held in the year celebrating the 150th anniversary of the founding of MIT as well as the centennial of Rutherford's May 1911 seminal paper, which explained the discovery of the atomic nucleus. Further, 2011 was the 65th anniversary of MIT's Laboratory for Nuclear Science, which hosted PANIC11. With strong support by the US Department of Energy, many national laboratories from around the world, industrial sponsors, and by MIT, the conference supported the extensive participation of young scientists, students and postdocs, who were the majority of participants, making for a very lively conference. Broad international participation was enhanced by IUPAP support for scientists from developing countries. The NSF supported video recording and broadcasting via an MIT public website of the plenary sessions, the public lectures, and the pre-conference pedagogical lectures, as well as outreach and participation of students from local high schools.

The conference program identified 12 major scientific themes around which the program was developed:

- Quarks and gluons in hot and dense matter
- Quarks and gluons in hadrons
- Neutrino physics and astrophysics
- Dark matter and cosmology
- Nuclear and particle astrophysics
- Standard model physics at the TeV scale
- Tevatron and LHC physics beyond the standard model
- Heavy flavor physics within and beyond the standard model
- Tests of symmetries and conservation laws
- Kaons, hypernuclei, hadron spectroscopy, and exotics
- Applied string theory
- Accelerator physics

The program was selected by the program committee, co-chaired by Janet Conrad and Krishna Rajagopal, and consisted of 24 plenary talks and 304 parallel session talks, as well as a poster session, which attracted 96 posters. The plenary sessions consisted of invited talks, and all contributed talks were selected from among the 572 submitted abstracts. In addition, there was a plenary presentation on the effects of the March 11, 2011 earthquake on nuclear and particle

physics facilities in Japan. There were well-attended public lectures by Brian Cathcart on *Glimpsing the Fly in the Cathedral: Ernest Rutherford and the Atomic Nucleus* and by Jerome Friedman on *Rutherford's Legacy in Particle Physics: Exploring the Proton*. On the day before the start of the conference, a series of 9 pedagogical lectures, directed at the level of the beginning graduate student, were presented by young researchers and covered the major thrusts in subatomic physics as well as recent advances in accelerators and detectors.

Financial support totaling \$71,500 was provided to enable young physicists and registrants from underdeveloped countries to attend PANIC11. The support took the form of a registration fee waiver, free local accommodation, and reimbursement for travel costs. This support was assigned by the Financial Support Committee, chaired by June Matthews. Further, prompt issuance of letters of invitation was a priority and 58 such letters were sent to assist in successfully securing visas to visit the U.S. to attend PANIC11.

The support by the Office of High Energy Physics for administrative support was essential for the success of the conference. This was necessary given the large number of participants, namely 539, and the processing of the large number of requests for financial assistance by young physicists and international researchers. Financial support totaling \$71,500 was provided to enable young physicists and registrants from underdeveloped countries to attend PANIC11. The support took the form of a registration fee waiver, free local accommodation, and reimbursement for travel costs. Further, prompt issuance of letters of invitation was a priority and 58 such letters were sent to assist in successfully securing visas to visit the U.S. to attend PANIC11. The support from HEP allowed a full-time administrative assistant, Anne Wright, to be hired for 12 months, beginning October 19, 2010, about 9 months before the start of the conference through 3 months following the conference. She handled the requests for financial assistance for young physicists and participants from underdeveloped countries as well as letters of invitation and many logistical issues before the conference and assembling the proceedings after the conference. Funding by HEP also provided support for the development of the conference web site and conference mailings.

The proceedings were published by the American Institute of Physics early in 2012.

19th Particles and Nuclei International Conference (PANIC11), S.G. Steadman, G.S.F. Stephans, F.E. Taylor, eds., American Institute of Physics Conference Proceedings 1441 (New York) 2012, 939 pages.