

**EDITORIAL**

**Chueng-Ryong Ji**

## **LIGHT-CONE 2014: Theory and Experiment for Hadrons on the Light-Front**

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The 2014 edition of the Light-Cone meeting took place at the North Carolina State University (NCSU) in Raleigh, North Carolina on 26–30 May <http://www.physics.ncsu.edu/LC2014/>).

The local organizing committee consisted of myself as the chair of the committee, J. Blondin (NCSU), H. Gao (Duke), D. Lee (NCSU), W. Melnitchouk (Jefferson Lab), T. Schaefer (NCSU), M. Unsal (NCSU), with L. Cochran and R. Bennett providing administrative support. This series of meetings is held under the auspices of the International Light Cone Advisory Committee (ILCAC), Inc. (<http://www.ilcacinc.org>). The Workshop was supported in part by generous contributions from Jefferson Lab, the College of Sciences at NCSU, and the NCSU Department of Physics. In particular, the support from NCSU allowed ILCAC to award this year's McCartor Fellowships to four young physicists, enabling them to attend the conference and present the results of their research.

LIGHT-CONE 2014 had over 70 participants, who presented a total of 65 talks and 4 posters. An emphasis on the interface between theory and experiment in hadron physics was a feature of this year's meeting, with several experimental talks from Jefferson Lab (R. McKeown, L. Elouadrhiri) and COMPASS at CERN (A. Ferrero, I. Choi), discussing recent results and future perspectives of hadron physics at their facilities.

The workshop covered many topics in hadron phenomenology related to the 12 GeV upgrade at Jefferson Lab, including nucleon generalized parton distributions (GPDs) (F. Wang, Y. Zhao, S. Liuti) and deeply-virtual Compton scattering (B. Pasquini), Compton form factors (B. Bakker), transverse momentum dependent distributions (TMDs) (D. Boer, A. Metz), and parton distribution functions (P. Jimenez-Delgado). There was discussion of flavor asymmetries in the nucleon sea (J.-C. Peng, W. Melnitchouk), the deuteron  $b_1$  structure function (G. Miller), the  $^3\text{He}$  spectral function (S. Scopetta) and the pion distribution amplitude (A. Radyushkin, N. Stefanis).

A variety of other, more formal theoretical topics in QCD and QED were also presented, including chiral symmetry breaking and confinement (P. Hoyer, I. Cloet, M. Schindler), Bethe-Salpeter and Dyson-Schwinger equations (P. Tandy, A. Bashir, M. Viviani, V. Karmanov), light-front models (G. Salme, T. Peña, H. Choi), and issues involving bound states and zero-modes (W. Polyzou, T. Frederico, A. Ilderton). Recent progress in light-front holography and AdS/QCD (R. Sandapen), as well as computational developments in many-body dynamics (J. Vary) were also highlighted. Some particularly stimulating presentations were on issues related to the proton spin (C. Lorcé), the proton charge radius (S. Glazek), GPDs and TMDs, as well as light-front chiral sum rules (S. Beane). The closing presentation was given by S. Brodsky.

A half-day excursion was made to several local museums (Art, History, Natural Sciences) and was followed by the Workshop dinner. During the dinner proceedings, as the Chair of LC2014 and ILCAC, I had the privilege to present awards to the four McCartor Fellowship recipients: Tim Hobbs (Indiana University), Yang Li (Iowa

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State University), Greger Torgrimsson (Chalmers University of Technology, Sweden) and Jai More (Mumbai University, India).

All of the papers published in this special issue of Few Body Systems (LC2014 Proceedings) were refereed by peer reviewers. The detailed program and all the presentations can be found at the workshop website, <http://www.physics.ncsu.edu/LC2014/>.

I express my deep appreciation to all the participants, local organizers, scientific advisory committee members and supporters who made this LC2014 meeting possible. In particular, LC2014 was a memorable event personally, celebrating the 70th birthday of my long-time colleague Prof. Ben Bakker who was the former Editor-in-Chief of this journal Few Body Systems as well as my 60th birthday at the same time.