

**EDITORIAL**

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## **LIGHT-CONE 2015: Theoretical and experimental challenges onto the Light-Front**

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The 2015 LIGHT-CONE meeting was hosted at the National Laboratories of the Istituto Nazionale di Fisica Nucleare (INFN) in Frascati, Italy, on September 21–26 ([http://www.roma1.infn.it/conference/light\\_cone\\_2015/](http://www.roma1.infn.it/conference/light_cone_2015/)). The local organizing committee was composed by B. Pasquini (Co-Chair, Pavia U. and INFN Pavia) and G. Salmè (Co-Chair, INFN Roma), M. Battaglieri (INFN Genova), D. Binosi (ECT\*, Trento), M. Boglione (Torino U. and INFN Torino), U. D'Alesio (Cagliari U. and INFN Cagliari), M.P. Lombardo (LNF, INFN Frascati), M. Mirazita (LNF, INFN Frascati), S. Scopetta (Perugia U. and INFN Perugia), with Mrs. D. Pierluigi (LNF, INFN Frascati) 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 INFN, and the Jefferson Science Association (JSA). This year there was a remarkable number of applications for the McCartor Fellowships, that allow promising young scientists to attend and present their research at the annual meeting. In particular, thanks to the support from JSA, ILCAC awarded the McCartor Fellowships to eight young physicists.

LIGHT-CONE 2015 had 79 registered participants, and was also attended by several researchers working at the LNF. The program of the workshop consisted in a total of 65 talks and 6 posters. Each participant was invited to vote for the two best posters. The presenters of the two most voted posters (L. Bellantuono and C. Mondal) have been awarded the possibility to contribute with a peer-reviewed paper published in this issue. Emphasis on the interface between theory, phenomenology and experiments in hadron physics was a distinct feature of LC2015. The program included several experimental talks from Jefferson Lab (H. Avakian, M. Battaglieri, R. De Vita, S. Malace, S. Pisano, P. Rossi), COMPASS at CERN (F. Bradamante) and HERMES (L. Pappalardo). Furthermore, we had an overview talk about the future perspectives at an electron ion collider (A. Deshpande). These talks have stimulated alive discussions on both recent results and future perspectives of hadron physics at experimental facilities worldwide. The workshop covered also many topics in hadron phenomenology related to the deep inelastic processes under study at several facilities, including nucleon generalized parton distributions (D. Mueller, H. Moutarde) and Compton form factors (B. Bakker), transverse momentum dependent distributions (M. Anselmino, A. Bacchetta, M. Echevarria, L. Mantovani, A. Signori), and double parton distributions (W. Broniowski, J. Gaunt, M. Rinaldi). Other interesting topics of discussion were: the flavor asymmetries in the nucleon sea (C.-R. Ji), the spin and orbital angular momentum structure of

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the nucleon (M. Burkardt, C. Lorcé, S. Pisano, O. Teryaev, J. Zhang), hadron reactions and spectroscopy studies (S. Glazek, M. Bochicchio, A. Szczepaniak). Furthermore, results from QCD lattice studies covering many of the previous different topics were also presented (C. Alexandrou, J. Papavassiliou, S. Ryan, G. Bali). Several formal theoretical topics in QCD and QED, were illustrated, like some recent advancements in light-front field theory (J.R. Hiller, L. Martinovic, D. Kulshreshtha), the Faddeev approach for hadrons (G. Eichmann), the Minkowski-space description of composite systems (J. Carbonell, W. De Paula, T. Frederico, V. Karmanov, M. Viviani), light-front models (H. Choi, T. Pena), and issues involving bound states and zero-modes (W. Polyzou). Recent progress in light-front holography and AdS/QCD (Guy de Teramond, S. Cotogno, V. Lyubovitskij and A. Vega), as well as computational developments in many-body dynamics (J. Vary) were also highlighted. The closing presentation was given by S. Brodsky.

A half-day excursion was made to Villa Adriana in Tivoli and was followed by the Workshop dinner. During the dinner, the Chair of LC2015 and ILCAC presented awards to the 8 McCartor Fellowship recipients: Arkadiusz Trawinski (Warsaw U.), Xiaonu Xiong (Pavia U.), Kelly Chiu (SLAC), Frederik Van der Veken (CERN), Matteo Rinaldi (Perugia U.), Henry Lamm (Arizona State U.), Sabrina Cotogno (Nikhef and Vrije U., Amsterdam), and Andrea Signori (Nikhef and Vrije U., Amsterdam).

The reader can find more details about the mentioned presentations and many other interesting contributions—all peer-reviewed—in this special issue (LC2015 Proceedings). The detailed program and all the presentations can be found at the workshop website [http://www.roma1.infn.it/conference/light\\_cone\\_2015/sc\\_program.html](http://www.roma1.infn.it/conference/light_cone_2015/sc_program.html).

It is a pleasure to express our deep appreciation to all the participants, local organizers, scientific advisory committee members, the staff of LNF in Frascati and supporters who made this LC2015 meeting possible.