GHP Newsletter August 2010

American Physical Society Topical Group on Hadron Physics

http://www.aps.org/units/ghp/

Executive Officers

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NB. EMail addressed to ghpexec@anl.gov will reach all members of the Executive.

Join GHP by following a link on the lower-right of our web page; namely, from: http://www.aps.org/units/ghp/.

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1 Membership

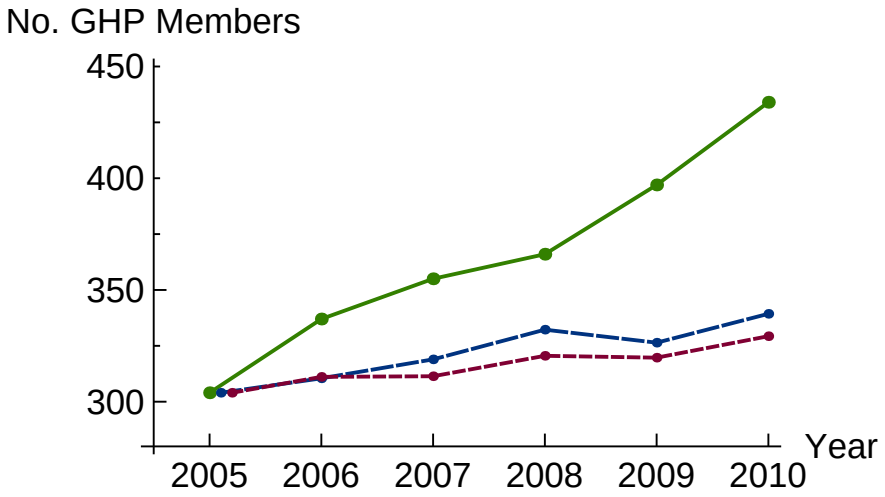

Figure 1: *Solid line* – GHP membership, true value, with "2010" representing the APS Official 2010 count; *long-dashed* – DNP membership normalized to GHP's value in 2005 (2401 → 304); and *short-dashed* – DPF membership normalized to GHP's value in 2005 (3291 → 304).

As of July, 2010, the GHP had 434 members, which represents 0.88% of APS membership. Of these people, 252 are also in DNP (Division of Nuclear Physics) and 246 are in DPF (Division of Particles and Fields). However, DNP has a total of 2680 members and DPF has 3565. Hence, it is certain that there are many Hadron Physics researchers who are not involved with GHP.

Importantly, if we can raise our membership to 500, then we will be able to make two regular-fellowship nominations each year. That would be an excellent boost for Hadron Physics. (At present we are only allowed one such nomination.)

There are now eleven Topical Groups, of which the GHP is the 6th largest. (A Topical Group on Energy Research and Applications (GERA) is newly formed.) Comparing 2009 membership with that in 2010, in relative terms, the GHP grew 9.3%. Neglecting the newly formed topical group, GHP is the second most rapidly growing, behind *Quantum Information*, with 1028 members, which grew 10.7%.

Membership in a strong GHP brings many benefits. A vital GHP

- establishes and raises the profile of Hadron Physics in the broader physics community, e.g., by nominating members
  - to APS governance committees,
  - to APS prize and award selection committees,
  - for election to Fellowship in the APS
- has a greater role in planning the program for major APS meetings;
- and provides a vehicle for community action on topics that affect the way research is conducted and funded.

Whether one considers the APS alone, or takes a broader perspective, the impact GHP can have is primarily determined by the number of members. (It is also influenced by the energy of the Executive.) The Executive urges existing members to encourage their colleagues to join us. We know there are absent-minded people who have overlooked the opportunity to join GHP but many will react positively to a little gentle prodding.

Membership is only $8. Of this, GHP receives $5 from the APS. (The remainder stays with the APS and covers the many services they provide.) With this support we can be an active force for Hadron Physics. The money can be used, for example, to assist with: the organization of meetings; the preparation of publications that support and promote the GHP's activities; and participation in those fora that affect and decide the direction of basic research.

Hence, if you are reading this newsletter but are not a member of GHP, please join. On the other hand, if you're already a member, please circulate this newsletter to your colleagues and encourage them to join.

Current APS members can add units online through the APS secure server by following a link on the lower-right of our web page; namely, http://www.aps.org/units/ghp/index.cfm.

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2 Elections

Elections are approaching for posts in the GHP Executive. We need to fill two positions:

- Vice-Chair (Stan Brodsky will become *Past-Chair*, Ron Gilman will become *Chair* and Ramona Vogt will become *Chair-Elect*, leaving the position of *Vice-Chair* vacant. With his ton on the board, Winston Roberts will return to the pavilion and see how the rest of us can wield the willow.)
- and one Member-at-Large (Sebastian Kuhn will by then have completed his stint.)

As was noted in the February newsletter, the Nominating Committee will solicit input from the GHP membership in October, 2010. The nomination of candidates will likely close on Fri. 29 October and an electronic ballot will subsequently be held over a four week period:

8 November – 6 December.

Our rules state that: the Committee shall nominate at least two candidates for the office of Vice-Chair and also for the open position of Member-at-Large; the slate of candidates will be

balanced as much as possible to ensure wide representation amongst the various fields of physics included in the GHP's membership; the Nominating Committee shall be chaired by the immediate past Chair, which is

Winston Roberts (wroberts@fsu.edu)

this year; and shall include three members in addition to its Chair, one of whom shall be appointed by the APS. The Committee is now formed:

2010 Nominating Committee

Winston Roberts	Adam Sarty	Anne Sickles	Steffen Strauch
wroberts@fsu.edu	sarty@ap.stmarys.ca	anne@bnl.gov	strauch@physics.sc.edu
Florida State U.	Saint Mary's U., Halifax	Brookhaven Nat. Lab.	U. South Carolina

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3 APS April Meeting, 2010

A topical group is invited to participate in planning the program of major APS meetings. This year there will be $1\frac{1}{2}$ sessions of invited talks sponsored by the GHP at the April meeting in Anaheim, California

30 April – 3 May, 2011

http://www.aps.org/meetings/meeting.cfm?name=APR11

The speakers and schedule are currently being developed. The Executive encourages GHP members to submit suggestions to the Program Committee, which is

GHP Program Committee, preparing for April 2011

Abhay Deshpandhe (Stony Brook)	Matthew Shepherd (Indiana)	Ron Gilman (Rutgers)
abhay@rcf.rhic.bnl.gov	mashephe@indiana.edu	rgilman@physics.rutgers.edu

Ron Gilman is Chair.

To be of most assistance, a nomination should be EMail-ed to the program committee chairman and provide (it should all fit within a $\frac{1}{2}$-page)

- Topic (title and short description)
- Rationale as to why the topic is timely
- Speaker (Name and qualifications)

The deadline for submission of GHP Invited Session Programs to the APS is

30th September, 2010.

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4 GHP 2011: 4th Workshop of the GHP

The Executive has begun planning for the Fourth Meeting of the APS Topical Group on Hadron Physics. It will take place over 2.5 days:

27-29 April 2011

i.e., just before the APS April Meeting and being held at the same hotel. Please mark these dates and the location in your calendar.

Ron Gilman and Ramona Vogt will co-chair the Organizing Committee. The Committee will be constituted from the entire Executive and selected members of GHP.

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5 Unit Convocation

5.1 Convocation

The Convocation is the gathering of unit officers. It provides for their familiarization with the ways of the APS, and is also an excellent opportunity for unit officers to learn from each other. Normally, this meeting is held in the middle of February, but this year, the date was changed because the "April Meeting in February" fell on the usual Unit Convocation weekend. As a result, the 2010 APS Unit Convocation took place at the American Center for Physics (APS Headquarters) in College Park, Maryland on Friday, April 30. The Convocation was much larger than usual this year because an invitation was extended to all the APS Committee Chairs. There are 21 standing committees of the APS and often these committees operate quite independently from one another. The APS Executive Board felt it was important for APS Committees to develop a sense of the larger APS picture.

This year two members of the GHP's Executive took part: Ron Gilman and Craig Roberts. The Convocation began with an on overview of the Structure of the APS and its Executive Office, delivered by Kate Kirby, of the Harvard-Smithsonian Center for Astrophysics, who succeeded Judy Franz as Executive Officer of the APS. It was followed by presentations on: APS finances; APS publications; and introductions to key APS staff. Gene Sprouse's presentation on publications (publications10.PDF) contained numerous items of interest. For example, at the present rate of decline, subscription to print-copies of APS journals will vanish by 2014, and APS journals have a very low publication-cost/article; viz., roughly \$1/article cf. *Springer* $\approx$\$17 and *Nature* $\approx$\$30. Nevertheless, APS journals provide the vast bulk of APS income (see finance2010.pdf).

After a coffee break, with discussions amongst the participants, Kirby introduced a discussion of APS Guiding Principles and Mission Statement. This lively discussion was followed by a description of the on-the-ground difficulties faced by the APS Washington Office, owing to the extremely partisan nature of present-day politics.

5.2 Capitol Hill

An important adjunct to the Unit Convocation is pre-convocation visits to Capitol Hill by the participants, which enable them to meet their Congressional representatives and discuss the

contributions that physics and physical science make to the nation. This year only Craig Roberts was able to take part in this activity on behalf of the GHP.

A good deal of pre-visit work must be done in order to set-up appointments with members of the Congress and Senate. The APS Office of Public Affairs does a terrific job coordinating this, including providing briefing material. However, individual participants must establish contact and arrange appointments with their representatives. It is usual that Congresspeople and Senators react best to requests from constituents; i.e., people who can actually vote in their district.

Craig Roberts joined with four other delegates from Illinois, to form a group that visited Illinois representatives:

1. Representative Judy Biggert (IL-13), speaking with the Congresswoman herself and Cade Clurman, her Legislative Director;
2. Senator Burris, speaking with Christopher Schepis, Senior Policy Advisor and Deputy Legislative Director;
3. Senator Durbin, speaking with Julie DeMeester, a Legislative Fellow;
4. Representative Philip G. Hare (IL-17), speaking with Michael Rámos, Legislative Assistant;
5. Representative Bobby Rush (IL-1, which includes U. Chicago), speaking with John Marshall, Legislative Assistant;
6. Representative Janice Schakowsky (IL-9), speaking with Isaac Brown, Legislative Director.

These meetings were held in the context of support for the Office of Science Budget request and a vote on the America Competes Act. All APS delegations lobbied for strong support of the budget request and reauthorization of the Act. With the exception of the meeting with John Marshall (Bobby Rush), the people we spoke with were very receptive to the APS message. It is notable that the Illinois representatives mentioned above have a strong record of supporting science funding. The highlight of a tiring day was an extended discussion toward its end with Congresswoman Biggert, whose enthusiasm for science support and frankness on the need for nonpartisanship on this issue, provided some grounds for optimism. The day finished with discussion of the day's events over dinner at the National Press Club.

It is worth noting that the America COMPETES Reauthorization Act, which provides a 5-year authorization for the DOE Office of Science, NSF and NIST that keeps those agencies on their ten-year fund-doubling track, was passed by the house late in May. (For the voting record, see http://www.govtrack.us/congress/vote.xpd?vote=h2010-332.) The process was, however, far from smooth. As, for example, when on May 13, the reauthorization fell victim to election-year politics. The Bill's framers had assumed both parties would support the final product, since they'd worked closely with the Republican Minority to create a bill they hoped would be acceptable to most Members. In fact, 5 Republicans voted for passage of the bill during Committee consideration. Unfortunately, on that occasion the vote did not remain bipartisan when it reached the House floor for consideration. Following all debate and consideration of amendments from both parties, Republicans introduced a "Motion to Recommit" that stripped out all the increased authorizations for science. This was done in order to freeze all spending accounts for the next three years at 2010 levels. To ensure that the

motion would pass, the motion also included a "poison pill" provision requiring the dismissal of all NSF personnel who had been identified as using office computers to watch pornography. This unexpected, 11th hour move forced nearly 100 Democratic members to switch their vote in support of the motion to recommit, sensing that a vote against the motion would have been portrayed as a vote for pornography.

The bill now goes on to the Senate but one must bear in mind that debate may be taking place on a companion bill in the Senate, rather than on this particular bill.
(http://www.govtrack.us/congress/bill.xpd?bill=h111-5116)

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6 Fellowship

Each year the APS allocates a number of Fellowship Nominations to a Topical Group. That number is based primarily on membership. A strong GHP can nominate more of our members for Fellowship. This year we were allocated one Regular nomination and one Alternate. With so many excellent hadron physicists, the limitation to only one regular nomination places stresses on our Fellowship Committee, which this year was

2010 GHP Fellowship Committee

Robert Edwards	Carl Gagliardi	Ramona Vogt (Chair)
edwards@jlab.org	gagliard@physics.tamu.edu	RLVogt@lbl.gov

However, as noted above, if GHP can raise its membership to 500, we will be allocated TWO Regular Nominations.

The 2011 Fellowship Committee will be formed after results of our forthcoming elections are known, and will be chaired by the incoming Vice-Chair.

The Executive urges members of GHP to be prepared in 2011 to nominate colleagues who have made advances in knowledge through original research and publication or made significant and innovative contributions in the application of physics to science and technology. They may also have made significant contributions to the teaching of physics or service and participation in the activities of the Society.

The deadline for nominations will be

4^{th} April 2011

and instructions for nomination may be found at
http://www.aps.org/programs/honors/fellowships/nominations.cfm
The entire process is now performed on-line.

A few things to know before proceeding, however. One must

- Ensure the nominee is a member of the Society in good standing. The on-line site will do this for you but it's best to check beforehand, to save yourself time or get your nominee to join APS and/or GHP.
- A nomination requires a sponsor and a co-sponsor. During the on-line nomination process, you will be required to provide details for a co-sponsor. After you complete a

nomination, the co-sponsor will be notified by EMail. It would be best to coordinate with the co-sponsor beforehand.

- You will require supporting letters, that will need to be up-loaded to the APS web site. Two letters of support are sufficient. Individuals providing letters of support do not have to be members of the APS, however, it is preferable in practice that sponsors be APS Fellows.

The APS subsequently forwards the Nominations to the GHP's Fellowship Committee.

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7 Meeting Summaries

7.1 Quarkonia

(On overview of two workshops, communicated by Ramona Vogt – RLVogt@lbl.gov.)

Quarkonium physics is an active, lively field with numerous puzzles remaining after many years of study. It has been the subject of a number of specialized meetings over the last few years. In the first half of 2010 there have been two meeting on quarkonium: the more general

"7$^{\text{th}}$ meeting of the Quarkonium Working Group (QWG),"

held at FNAL in May and

"Quarkonium 2010: Three Days of Quarkonium Production in pp and pA Collisions,"

held at the Ecole Polytechnique on the outskirts of Paris, France in late July.

7.1.1 QWG 7

The QWG, founded by Nora Brambilla, a member of GHP, covers the full range of quarkonium physics. The QWG conveners are Geoff Bodwin (ANL), Nora Brambilla and Antonio Vairo (TU München), Vaia Papadimitriou (FNAL), and Roberto Mussa (INFN, Torino). There are 4-5 conveners for each broad topic (production, decay, spectroscopy, and in-medium): two theorists and two or three experimentalists. The more specialized topics of Standard Model, Beyond the Standard Model and Super B have one to three conveners. In addition, there are specified liaisons with each major experiment to further quarkonium studies, sometimes within collaborations where quarkonium is not the primary focus (a background or decay channel rather than a major signal). The QWG periodically produces reports on the state of the field and hosts meetings cycling between the US, Europe and Asia in approximate 18 month intervals. The first report was the CERN Yellow Report CERN-2005-005 (hep-ph/0412158). The second is in the advanced stages of completion and will be published in Eur. Phys. J. C later this year. The QWG website is http://www.qwg.to.infn.it.

The FNAL workshop, the seventh general QWG meeting, covered a number of new results, only a few of which are mentioned here. For the full agenda and slides, see the meeting home page, http://conference.fnal.gov/QWG2010. The next QWG meeting will be at GSI in early October 2011.

The Standard Model session included calculations of the bare charm and bottom quark masses from $R = (e^+e^- \to \text{hadrons})/(e^+e^- \to \mu^+\mu^-)$ and heavy-quark current-correlators. They

found $m_c(3\,\mathrm{GeV}) = 0.986\,\mathrm{GeV}$ ($m_c(m_c) = 1.279\,\mathrm{GeV}$) and $m_b(10\,\mathrm{GeV}) = 3.61\,\mathrm{GeV}$ ($m_b(m_b) = 4.16\,\mathrm{GeV}$), in good agreement with lattice results but lower than the values of m_c and m_b used in many pQCD calculations.

The spectroscopy session included a number of new experimental results, including CDF's observation of a new structure in the $J/\psi\phi$ spectrum at 4.143 GeV, dubbed $Y(4140)$. Lattice calculations using NRQCD effective theory calculate B_s and B_c masses in good agreement with the measured masses using difference methods: $m_{B_s}^{\mathrm{latt}} = 5.364(9)(5)\,\mathrm{GeV}$ and $m_{B_s}^{\mathrm{exp}} = 5.3663(6)\,\mathrm{GeV}$ while $m_{B_c}^{\mathrm{latt}} = 6.284(4)(5)/6.276(13)\,\mathrm{GeV}$ (heavy-heavy/heavy-light difference methods) $m_{B_c}^{\mathrm{latt}} = 6.277(6)\,\mathrm{GeV}$.

The decay session included results on radiative decays and transitions of charmonium from the final CLEO-c data set ($\sim 26 \times 10^6$ $\psi(2S)$ decays). Studies of the decay chain $\psi(2S) \to \gamma\chi_{cJ}; \chi_{cJ} \to \gamma J/\psi$ found that the anomalous magnetic moment of the charm quark is consistent with zero. They also set an upper limit on the branching ratio $\psi(2S) \to \gamma\eta_c(2S)$ of $\sim 10^{-5}$. The theory discussions in this session included talks describing new approaches to understanding the discrepancy in the $\psi(3770) \to \mathrm{non}{-}D\overline{D}$ results. BES sees a substantial non-$D\overline{D}$ contribution to $\psi(3770)$ decays while the CLEO result implies a near-negligible contribution. (See Sec. 8.1 for a BES update.) If pQCD (NRQCD) is the dominant mechanism, the non-$D\overline{D}$ decays will be suppressed while if it is not, nonperturbative effects could lead to a violation of the OZI rule, resulting in an important non-$D\overline{D}$ component. The calculated result is $\mathcal{B}(\psi(3770) \to \mathrm{non}{-}D\overline{D}) < 5\%$, lower than the BES result.

In the production session, the LHC experiments presented early results, showing reconstructed peaks for ρ, ϕ, K_s and Λ, in good agreement with the Particle Data Group values, proving the performance capabilities of the LHC, even with limited luminosity. In addition, quarkonium polarization measurements, crucial for understanding the production mechanism, were put into perspective. The observed polarization was shown to depend strongly on the reference frame, kinematics and experimental acceptance. It was noted that the azimuthal dependence is necessary for a complete result and the need for avoiding kinematic averages was stressed. A frame-independent combination of the polarization parameters, useful to facilitate comparison with theory, was also introduced.

The in-medium session included reports of how an anisotropic medium affects quarkonium binding. The screening mass is assumed to be modified by an angular term, *e.g.* $\mu = m_D(1 - \xi(3 + \cos 2\theta)/16)$ where ξ is an anisotropy parameter with $\xi = 0$ representing the isotropic solution and $\xi = 1$ a maximum anisotropy. When $\xi > 0$, the binding energy is stronger and the quarkonia radii are smaller than in the isotropic system, making the system harder to break up. PHENIX and STAR both reported preliminary measurements of R_{dAu} for Υ, indicating a stronger cold matter suppression than previously expected.

7.1.2 Quarkonium 2010

The Quarkonium 2010 workshop, organized by Frederic Fleuret, Jean-Philippe Lansberg, Elena Fereirro and Zaida Conesa del Valle, was more specific in its focus, concerned more with in-medium and hadroproduction-related issues. In addition to the plenary talks, there were long discussion sessions, organized by working group conveners: production in *pp* collisions; cold nuclear matter effects; polarization and feed down; relationship to open charm; quarkonium as a tool; and new observables. The workshop website is http://www.cpht.polytechnique.fr/quarkonium.

Quarkonium 2010 benefitted from the proximity to the ICHEP meeting which ended just prior to the start of the workshop. In particular, the LHC experiments now had significant preliminary quarkonium results. The first quarkonia p_T spectra from ATLAS, CMS and LHC-b were shown, along with a measurement of the average quarkonium p_T from ALICE. ATLAS also presented some preliminary polarization studies while CMS showed prompt vs. non-prompt quarkonium production as well as the first Υ p_T distribution. They also showed clean separation the $\Upsilon(1S)$ and $\Upsilon(2S)$ states with a hint of the $\Upsilon(3S)$. While they also distinguish between the J/ψ and $\psi(2S)$, there is not yet a $\psi(2S)$ spectrum. LHC-b presented the largest number of J/ψ, $\sim$ 60k. Comparison plots indicate that all the LHC pp experiments agree within the experimental uncertainties.

All the LHC experiments are benefitting from the lower machine luminosity that has not so far required the use of triggers, allowing all interesting events to be kept. This will not be the case when the luminosity ramps up further. In addition, the current runs at $\sqrt{s} = 7\,\text{TeV}$ are closer in energy to the maximum Pb+Pb energy of 5.5 TeV/nucleon, a better reference than when the proton beam energy is increased to its maximum value of 7 TeV. The experiments compared their data to model predictions, including the color singlet model (CSM) and nonrelativistic QCD (NRQCD), and color-evaporation model (CEM) calculations. There is no clear message yet from the data relative to the models. The need for a new PYTHIA simulation, including updated color octet matrix elements which account for higher-order CSM calculations, was discussed.

Ways of disentangling the different cold matter effects on quarkonium in-medium were discussed. NA60 presented their revised SPS analysis, including the modifications of the parton distributions in matter, and showed how this affects the extracted quarkonium absorption cross section. The need for new calculations including energy loss in matter was discussed and efforts to extract the quark energy loss from Drell-Yan production were presented. In the polarization session, a method of extracting the χ_c polarization, important for understanding inclusive J/ψ polarization, was discussed.

Open charm can be used as a means of normalizing the J/ψ recombination probability if the total charm production cross section is well in hand. Preliminary new STAR analyses of the non-photonic electron p_T distribution, predominantly from heavy flavor decays, agrees with PHENIX and the level predicted by FONLL (fixed-order plus next-to-leading-order). However, this agreement does not extend to the total cross section, a factor of two larger than PHENIX, since that result is normalized by the STAR low p_T D meson measurement. The discrepancy is not likely to be resolved until both STAR and PHENIX are using vertex trackers to reconstruct D meson decays and, hopefully, also B meson decays to more directly determine the B contribution to the non-photonic electron spectrum, important for understanding heavy flavor energy loss in matter.

In the quarkonium as a tool working group, there was a lively discussion of whether or not it is possible to extract stepwise behavior from the centrality-dependent data, indicative of sequential suppression in hot matter. It was suggested that the fact that $\chi^2/\text{d.o.f.} < 1$ assuming a step pattern while $\chi^2/\text{d.o.f.} > 1$ with no steps should be enough to favor a stepwise result at the SPS. Such an interpretation of the RHIC data is still open to debate. New quarkonium-related observables may help. Some of these would test the production mechanism: the $J/\psi + g$ color singlet final state can be studied through $J/\psi +$ hadron correlations. Double quarkonium production: $J/\psi + J/\psi$; $\Upsilon + \Upsilon$; and $J/\psi + \Upsilon$ can test the importance of color octet production. It was also proposed to study the influence of the nature of the complete event on quarkonium production; e.g., by measuring the ratio of charged hadron multiplicity with and without J/ψ production as a function of multiplicity.

Three other quarkonium in-medium related workshops were announced at Quarkonium 2010: Nantes in October 2010; Vienna in April 2011; and Sicily in September 2011, demonstrating the health of the field.

7.2 Light Cone 2010: Relativistic Hadron and Particle Physics

(An overview contributed by Joannis Papavassiliou – joannis.papavassiliou@uv.es, Chueng Ji – crji@ncsu.edu, and Vicente Vento – vicente.vento@uv.es.)

The 2010 edition of the Light Cone meeting took place in Valencia (Spain): 14th-18th of June.
http://www.uv.es/lc2010/

The local organizing committee consisted of J. Papavassiliou and V. Vento (Chairpersons), and A. C. Aguilar, A. Courtoy and J. Portolés (Scientific Secretaries). This series of meetings is held under the supervision of the International Light Cone Advisory Committee (ILCAC, Inc. See http://www.ilcacinc.org).

The Workshop received generous contributions from a variety of sponsors, most notably: the *Generalitat Valenciana* (the local government of the Valencia Community); the Department of Theoretical Physics of the University of Valencia and the University of Valencia through its research fund; the Institute for Particle Physics (IFIC); the *Consejo Superior de Investigaciones Científicas (CSIC)*; the National Center for Particle, Astroparticle, and Nuclear Physics (CEPAN); European Physical Journal A (EPJA); Hadron Physics$_2$, a European Union Framework Programme; and the ILCAC.

LC2010 had approximately 80 physicists, and featured a total of 68 presentations (invited talks and posters). It took place at the beautiful Pineda Palace, site of the Universidad Internacional Menéndez Pelayo, in the medieval quarter of the city.

The program was extended this year to incorporate field theory at finite temperature and density, and invited presentations of the most relevant experimental collaborations. Owing to the large number of participants, and the high quality of the submitted contributions, parallel sessions were held two out of the five days of the Workshop. It was a very lively conference with extremely interesting presentations and instructive discussions, which showed the healthy state of this field of research.

The main topics included: Light front field theory and other non-perturbative approaches; relativistic nuclear and hadron structure; non-perturbative methods and renormalization theory; AdS/CFT overview and application to strongly interacting systems; recent results in perturbative QCD, lattice and hamiltonian QCD; relativistic heavy ion physics; generalized parton distributions (GPDs); deeply virtual Compton scattering (DVCS) and transverse momentum distributions (TMDs); and the pion transition form factor and the BaBar data.

In addition, Stan Brodsky (current Chair of the GHP), marking the occasion of his seventieth birthday, delivered a special lecture in the Aula Magna of the old University building, sponsored by the European Physical Journal A, reflecting his personal view of Light Cone physics over the many years he has been involved. He highlighted recent developments in Light-Front Holography, which connects results in higher space-time dimension theories such as AdS/QCD to physical spacetime.

The Workshop began with a session on light-front field theory and other non-perturbative approaches. J. P. Vary, acting as convener, presented some of the most important developments and the prominent challenges of non-perturbative Hamiltonian Light-Front field theory. In this session, J.-F. Mathiot, S. D. Glazek, T. Frederico, J. Hiller, A. Ilderton, S. Chabysheva,

D. Kulshreshtha and U. Kulshreshtha described their progress since the last meeting.

The second session was dedicated to relativistic nuclear and hadron structure. The convener, G. Salmé, presented studies of the deuteron electromagnetic form factor using light-front Hamiltonian dynamics. B. Bakker and S. Scopetta described their work on light nuclei; W. Polyzou, V. Karmanov and B. Desplanques discussed relativistic quantum mechanical descriptions; W. Plessas and H. Sanchis presented relativistic descriptions of hadron structure; V. Mathieu and M. González discussed effective field theory descriptions of mesonic properties; F. Llanes-Estrada presented a study of Regge behavior in exclusive processes; and H. J. Lee discussed a sum-rule analysis of the tetraquark.

The third session dealt with non-perturbative methods and renormalization theory. Several talks, by D. Binosi (convener), D. Dudal, J. Rodríguez-Quintero and N. Wschebor, were dedicated to the interpretation of recent lattice-QCD results on QCD Green functions via Dyson-Schwinger equations and other non-perturbative approaches.

The fourth session presented an overview on AdS/CFT and application to strongly interacting systems. A. Pomarol (convener) gave a detailed overview of the AdS/CFT formalism and some of its applications. G. de Teramond and V. Lyubovitskij discussed the connection between Light-Front QCD and AdS gravity, and presented applications to the light mesons as well as baryon spectrum and form factors.

Session five discussed recent results in perturbative QCD. N. Glover (convener) discussed perturbative calculations of interest for LHC physics. G. Rodrigo, R. Pérez and S. Dalley discussed their recent developments in the treatment of loops, multiparticle production and two photon decays at LHC.

Session six was dedicated to lattice QCD. G. P. Lepage gave a review talk on the history and status of high-precision lattice QCD, summarizing the most important results and discussing the limitations of lattice simulations. P. Hägler (convener) reviewed the status of QCD calculations on hadronic properties. E. Ruiz-Arriola presented his most recent results regarding the pion wave function and H. Pirner discussed the gluon structure function in hamiltonian lattice QCD.

The physics of the seventh session was new to the workshop series, although it was discussed occasionally in the past. It dealt with relativistic heavy ion physics and its relation with field theory at high temperature and density. There were experimental lectures by: G. Martínez, who acted as convener and discussed ALICE physics; D. d'Enterria, who reviewed recent results at RHIC; Z. Conesa, who presented ultra peripheral collisions; and A. Cunqueiro, who showed the first results of Alice. Theory presentations were made by D. Kharzeev, I. Zahed, N. Armesto and P. Petreczky, who described various interesting phenomena that can be extracted from present data, via different theoretical viewpoints, and future perspectives.

M. Burkardt, as convener of the eighth session, presented an overview of his impact parameter representation of DVCS, GPDs and TMDs. G. Schnell presented the actual experimental situation from the perspective of the last Hermes data. C.-R. Ji illustrated a central issue in the discussion of GPDs relating to the choice of kinematics. N. Stephanis, C. Lorce, H. Dahiya and A. Mukherjee discussed their contributions to these topics.

The Conference ended with a particularly lively session on the pion transition form-factor and the BaBar data. M. Dubrovin (Babar Collaboration) presented data in the momentum transfer region of 4 to 40 GeV^2; and M. Polyakov, A. Dorokhov, W. Broniowski, J. Pacheco and N. Tsirova proposed various models for explaining the observed behavior.

During the Conference dinner, Ben Bakker (former chair of the ILCAC) introduced new officers of the ILCAC: Chueng Ji (chair); Wayne Polyzou (vice chair); Tobias Frederico (secretary); and Simon Dalley (treasurer). James Vary (chair of the fundraising committee in the ILCAC) presented awards to this year's *Gary McCartor Fellows*: Cedric Lorce (University of Mainz); Usha Kulshreshtha (University of Delhi); and Asmita Mukherjee (India Institute of Technology, Mumbay). This $2,000 travel grant contributes toward the expenses incurred by each recipient in attending LC2010.

The Proceedings of LC2010 will be published by early October electronically by *Proceedings of Science*.

7.3 EIC Collaboration Meeting

(Communicated by EICC Coordinators: Abhay Deshpande – abhay@rcf.rhic.bnl.gov; and Richard Milner – milner@mit.edu.)

The Electron-Ion Collider Collaboration held its regular, semi-annual meeting at the Catholic University of America (CUA) in Washington, DC over the period July 29th to 31st, 2010. The meeting was organized by Prof. Tanja Horn from CUA. Over three days, the 60 attendees listened to presentations and discussed the science, accelerator designs for the EIC proposed by BNL and JLab, and detector concepts presently under consideration.

Highlights from the science talks included: discussion of the transverse structure of the nucleon; using the EIC to determine the initial conditions for a sQGP formed in heavy ion collisions; extraction of $\Delta G(x)$ from projected EIC data; and searching for $e \to \tau$ lepton flavor violation at EIC.

There were a number of detailed reports from the substantial design efforts of the EIC in progress at both BNL (eRHIC) and at JLab (ELIC). The design efforts are converging to machine concepts with a luminosity of order $10^{34}\text{cm}^{-2}\text{s}^{-1}$. Detailed reports were provided on consideration of beam dynamics, IR design, high intensity polarized electron sources, beam lattice, and synchrotron radiation.

There were a number of presentations on simulating the important physics processes and on the concept of a new EIC detector to measure them. Preliminary ideas of using modified versions of the existing STAR and PHENIX detectors in conjunction with eRHIC at BNL were also presented. Possible methods for electron and hadron beam polarimetry were discussed. An impressive feature of these presentations was the work of a number of undergraduate students from Boston University, CUA, Muhlenberg College and Stony Brook University, working over the last few months and over the summer at BNL, JLab and MIT. There were reports on EIC International Advisory Committee's deliberations and recommendations from their last meeting in November 2009, as well as on the organization of the future 10-week program at the INT/U. Washington in Fall 2010, which is aimed at unifying and strengthening the scientific case for the EIC. It is anticipated that the next EICC meeting will take place in early 2011.

The detailed program and all presentations from the EIC meeting at CUA can be found at: http://web.mit.edu/eicc/CUA10/index.html.

7.4 The 2010 RHIC/AGS Users' Meeting

(Communicated by Helen Caines, Chairperson of the Users' Executive Committee – helen.caines@yale.edu.)

From June 7-11 approximately 180 members of the RHIC and AGS users group met at BNL for their annual meeting. The participants were updated on recent results from RHIC, the status of the laboratory from BNL management, and the current funding picture from DOE and NSF. One day was dedicated to a symposium on education and public outreach, which was co-sponsored by the National Users Facility Organization.

Burak Alver (PhD Massachusetts Institute of Technology) and Michael McCumber (PhD Stony Brook University) were each congratulated, and awarded plaques and $3000 as winners of the 2010 thesis award. Burak worked in the PHOBOS collaboration on elliptic flow fluctuations and non-flow correlations in heavy ion collisions, while Michael studied fast parton interactions with hot dense nuclear matter via two-particle correlations at PHENIX. The University of Tennessee's Irakli Garishvili received an honorable mention.

2010 is especially important for BNL, since the Laboratory is celebrating the 90th birthday of Ernest Courant – one of three scientists who originated the idea of "strong focusing" accelerators – the 50th anniversary of the startup of the AGS, and the 10th anniversary of RHIC operations. The final 2 days of the users meeting were dedicated to marking these occasions. The audience swelled as other members of the BNL community attended, eager to learn about BNL's prestigious history. More than 20 scientific leaders, including two people whose work at BNL won them the Nobel Prize, gave presentations.

Samuel C. C. Ting, who shared the 1976 Nobel Prize in Physics for the discovery of the J/ψ particle, discussed his experiences with precision experiments on the ground, and most recently, in space via the Alpha Magnetic Spectrometer (AMS) experiment, scheduled for launch this winter.

James Cronin, who received his Nobel Prize, along with Val Fitch "for the discovery of violations of fundamental symmetry principles in the decay of neutral K-mesons", entertained the audience with tales of his first days at BNL, and his experiences performing experiments at the Cosmotron, where he helped discover the long-lived neutral K-meson. Cronin said: "I want to stress that Brookhaven for me was an extraordinary experience, not only because of what I learned and did in my own physics, but because of all of the people who surrounded me."

The other talks varied from overviews of the ground breaking physics from BNL's accelerators, to reminisces of life in the converted barracks at BNL just after the war. Courant noted that he was staying in one of those barracks again for this meeting.

The celebrations continued into the evening with a "Birthday" dinner. One of the evening's highlights was when Dennis Kovar, the US DOE Associate Director of Science for High Energy Physics, presented, an Appreciation Award to Derek Lowenstein. The award was made on behalf of William Brinkman, director of the DOE Office of Science, for Derek's outstanding leadership and service as Department Chair for the Collider-Accelerator Department at Brookhaven National Laboratory for 27 years.

More details about the meeting and links to the individual presentations can be found here: http://www.bnl.gov/rhic_ags/users_meeting/

8 State of the Laboratories

8.1 Beijing Electron Positron Collider

(Communicated by Xiaoyan Shen – shenxy@ihep.ac.cn.)

The upgraded Beijing Electron Positron Collider II (BEPCII)/Beijing Electromagnetic Spectrometer III (BESIII) is a unique and powerful facility running at the energy region of 2 – 4.6 GeV, in which many of the charmonium states and charm mesons, as well as τ leptons can be produced. The physics program of BESIII covers the spectroscopy of light hadrons, charmonium physics, $D(Ds)$ physics and τ physics. It also allows searches for possible new physics.

The major change of BEPCII is the installation of a second ring of magnets that allows the electron and positron beams to be stored separately, and therefore leads to the designed peak luminosity of 10^{33} cm^{-2}s^{-1}, an order of two improvement over that of BEPC. BESIII is a brand new detector which consists of the following components:

1. A small-celled, helium-based main drift chamber (MDC) with 43 layers. The average single wire resolution is 135 μm, and the momentum resolution for 1 GeV charged particles in a 1 T magnetic field is 0.5%.

2. An electromagnetic calorimeter (EMC) made of 6240 CsI (Tl) crystals arranged in a cylindrical shape (barrel) plus two endcaps. For 1.0 GeV photons, the energy resolution is 2.5% in the barrel and 5% in the endcaps.

3. A Time-Of-Flight system (TOF) for particle identification composed of a barrel part made from two layers of plastic scintillators and two endcaps. The time resolution is 80 ps in the barrel, and 110 ps in the endcaps, corresponding to a 2σ K/π separation for momenta up to about 1.0 GeV

4. A muon chamber system (MUC) made of 1000 m^2 of Resistive Plate Chambers (RPC) arranged in 9 layers in the barrel and 8 layers in the endcaps and incorporated in the return iron of the superconducting magnet. The position resolution is about 2 cm.

The construction of BESIII detector started in 2003. Joint commissioning of BESIII and BEPCII began in 2008. On July 19, 2008, the first physics event produced by the electron-positron collision was observed. Since then, BESIII has accumulated 106 million ψ' events, four-times the number obtained by CLEOc; 226 million J/ψ events, four-times more than BESII; and about 900 pb^{-1} $\psi(3770)$ data. During data taking, the BEPCII reached a peak luminosity of 0.32×10^{33} cm^{-2}s^{-1}, the detectors worked properly and the performance reached the design requirements.

Based on 106M ψ' and 226M J/ψ samples, many excellent results have been obtained. We observe a clear charmonium state h_c in $\psi' \to \pi^0 h_c$ with and without the subsequent radiative decay $h_c \to \gamma\eta_c$, and measure the absolute branching fractions of $\psi' \to \pi^0 h_c$ and $h_c \to \gamma\eta_c$ for the first time. In the decays of $\psi' \to \pi^+\pi^- J/\psi(J/\psi \to \gamma p\bar{p})$ contained in the ψ' sample and $J/\psi \to \gamma p\bar{p}$ from the J/ψ sample, a strong enhancement at threshold is observed in the $p\bar{p}$ invariant mass spectrum in both cases, which confirms BESII's observation. The enhancement can be fit with an S-wave Breit-Wigner resonance function. The resulting peak mass and width are consistent with those from BESII but do not match with those of any known mesons.

Decays of $J/\psi \to \gamma\eta'\pi\pi$ have bee studied. The resonance $X(1835)$, which was observed at BESII in the same decays, is confirmed in two decay modes of η' ($\eta' \to \gamma\rho$ and $\eta\pi\pi$). We find

in addition a hint of two new additional structures. We also searched for possible new structure in $J/\psi \to \omega\eta\pi\pi$.

Preliminary results on charmonium decays have also been obtained. These include the first measurements of $\chi_{cJ} \to \omega\phi$, $\chi_{c1} \to \omega\omega$ and $\phi\phi$, and the study of $a_0(980) - f_0(980)$ mixing, etc. More exciting results are expected with the accumulation of more data.

8.2 Highlights from COSY Jülich

(Contributed by Susan Schadmand – s.schadmand@fz-juelich.de. More information and detail about recent results and developments at COSY can be found on the public web pages of the Nuclear Physics Institute in Jülich – http://www.fz-juelich.de/ikp/.)

The Cooler Synchrotron and storage ring (COSY) delivers unpolarized and polarized beams of protons and deuterons with momenta up to 3.7 GeV/c for two internal experiments – ANKE and WASA – and one experiment – TOF – at an external target position. The three detection systems are operated by international collaborations.

ANKE (Apparatus for Studies of Nucleon and Kaon Ejectiles) is a large acceptance forward magnetic spectrometer at an internal target station in the COSY ring. The central dipole is movable to adjust the momenta of the detected particles independent of the beam momentum. Using deuterium cluster targets, reactions on the neutron are tagged by detecting the low-energy recoil proton in silicon strip detectors in vacuum next to the target. In addition, a polarized internal target with a storage cell can be used.

WASA (Wide Angle Shower Apparatus), an internal 4π spectrometer for neutral and charged particles, is operated at the internal COSY beam. WASA comprises an electro-magnetic calorimeter, a very thin superconducting solenoid, inner and forward trigger and tracking detectors, and a frozen-pellet target.

TOF (Time Of Flight) is a non-magnetic spectrometer combining excellent tracking with large acceptance and full azimuthal symmetry allowing the measurement of complete Dalitz plots. TOF is optimized for final states with strangeness. With the new straw tube tracking system (STT), TOF will have a significantly improved mass resolution and reconstruction efficiency.

In addition, the unique COSY capabilities are used by the dEDM- and PAX-collaborations to investigate spin-manipulations, to build a dedicated EDM-storage ring experiment, and to prepare experiments on polarization buildup of protons and antiprotons in storage rings.

Decays of η Mesons
The key experiment for the WASA detector at COSY is the study of (rare) η meson decays. During the last two years, data sets from *pp* and *pd* interactions have been collected. A very first production run in April 2007 yielded 8×10^5 events for the $pp \to pp(\eta \to 6\gamma)$ reaction, see "Measurement of the $\eta \to 3\pi^0$ Dalitz Plot Distribution with the WASA Detector at COSY," Phys. Lett. B 677 (2009) pp. 24-29. In the next four week run period in October 2008, η decays were studied using the $pd \to {}^3\mathrm{He}\eta$ reaction at a beam energy of 1 GeV. An unbiased data sample of 1.1×10^7 η meson decays was collected. Results to be published include the search for the box anomaly contribution in the decay $\eta \to \pi^+\pi^-\gamma$ (thesis C. F. Redmer, http://www.fz-juelich.de/ikp/wasa/theses.shtml). The *pd* data sample was increased to 3×10^7 η meson decays in an eight week continuation in August/September 2009. Further results include symmetry-breaking decays ($\eta \to \pi^+\pi^-e^+e^-$, $\eta \to \pi^0e^+e^-$), tests of chiral perturbation theory ($\eta \to 3\pi$, $\eta \to \pi^0\gamma\gamma$), and single and double electromagnetic transition form factors with the most ambitious goal being the search for new physics with the $\eta \to e^+e^-$ decay.

Further progress towards rare η decays is being made by focusing on the $pp \to pp\eta$ production reaction. The reaction has a 10–20 times larger cross section (10μb at 1.4 GeV). Meanwhile, tagging on the $pp \to pp\eta$ reaction poses a challenge. A first investigation considers production reactions of η mesons as well as multi pion channels, see "Double-Pion Production in Proton-Proton Interactions" (thesis T. Tolba, http://www.fz-juelich.de/ikp/wasa/theses.shtml). In spring 2010, the first long production run of 8 weeks for η meson decays in pp interactions was carried out. The data are presently being analyzed. The extension of the physics program to ω and η' decay studies is being prepared.

ABC-Effect in pp, pn, pd and dd Reactions
Both the ANKE and the WASA collaborations have investigated two-pion production via the reactions $pp \to pp\pi^0\pi^0$ and $pn \to d\pi^0\pi^0$ to shed light on the nature of the enhancement of the invariant two-pion mass spectrum in hadronic reactions first observed by Abashian, Booth, and Crowe (ABC effect) in 1961, but still defying an explanation. A peak structure at $\sqrt{s} = 2.38$ GeV; i.e., 80 MeV below the $\Delta\Delta$ mass, with a width of only 50 MeV is seen in the isoscalar reaction $pn \to d\pi^0\pi^0$ and seems to be confirmed in the fusion process $dd \to 4\mathrm{He}\pi^0\pi^0$.

ϕ Meson Width in Nuclear Matter
The ANKE collaboration has studied the modification of the ϕ-meson width in nuclear matter, using C, Cu, Ag, and Au targets. The phi-meson mass follows a target mass dependence of $A^{(0.56\pm0.02)}$ in the momentum range of 0.6–1.6 GeV/c. The comparison of the data with model calculations suggests that the in-medium ϕ width is about an order of magnitude larger than its free value.

Preparing for HESR and PANDA at FAIR
A central mission of the Nuclear Physics Institute (IKP) in Jülich is the design and preparation of the high energy storage ring (HESR) within FAIR. IKP has finalized the ion-optical layout of the HESR. Work on the technical specifications for the magnets and power supplies is in progress. In line with the recent decision for a modular realization of the FAIR project, development of a new injection and accumulation scheme for HESR has started. For the PANDA detector, significant progress has been made in optimizing the design of the microvertex detector, a central element of PANDA which will allow detection of D-mesons by measuring their decay length with a precision better than 100 μm. Furthermore, the technique developed for the COSY-TOF straw tracker has been adopted for the proposed PANDA Straw Tube Tracker(STT) and a first prototype has been assembled.

8.3 Jefferson Lab Experimental Program

(Communicated by Ronald Gilman – rgilman@physics.rutgers.edu, Kawtar Hafidi – kawtar@anl.gov, Allison Lung – lung@jlab.org, and Eugene Pasyuk – pasyuk@jlab.org.)

The Thomas Jefferson National Accelerator Facility (JLab) experimental hadron physics program during the first half of 2010 has largely been limited to Hall B. Hall A has been measuring the neutron radius of lead through parity violating electron scattering and testing a search technique for an exotic light vector boson. Hall C has been installing the Q_{weak} experiment, a measurement of the weak charge of the proton.

Hadron Spectroscopy

CLAS G9: A large part of the experimental program in Jefferson Lab Hall B is dedicated to baryon spectroscopy. Photoproduction experiments are an essential part of this program. The CEBAF Large Acceptance Spectrometer (CLAS), and the availability of circularly and linearly polarized tagged photon beams provide unique conditions for this type of experiments. CLAS

has already collected a vast amount of data on the unpolarized cross sections, and data with polarized photons on unpolarized targets. The recent addition of the Frozen Spin Target (FROST) gives CLAS the remarkable opportunity to measure double and triple polarization observables for different pseudoscalar meson photoproduction processes on polarized proton and neutron targets (using deuterium). This enables a complete experiment, which will allow a model-independent extraction of the reaction amplitudes. For $K\Lambda$ photoproduction in particular, it is planned to measure all 16 observables, an over-complete data set that allows a thorough study of systematics and analysis procedures. Data obtained with a longitudinally polarized target and photon energies up to 2.5 GeV are now being analyzed, while measurements with a transversely polarized target are in progress.

CLAS EG6: During fall 2009, two Jefferson Lab experiments, E07-009 and E08-024, combined into one run group called EG6, and were performed in Hall B CLAS. The first experiment, E07-009, studied meson spectroscopy using coherent production from ^{4}He. It mapped out the mass range up to 2 GeV, searching for the $J^{pc} = 1^{-+}$ exotics: $\pi_1(1400)$ and $\pi_1(1600)$. The advantage of coherent production of neutral mesons on ^{4}He is that it eliminates the baryon background, and that scattering off a spin and isospin zero target works as a spin and parity filter. The second experiment, E08-024, focused on deeply virtual Compton scattering from ^{4}He. It measured the beam-spin asymmetry for coherent $^4\mathrm{He}(e, e'\gamma^4\mathrm{He})$ and the incoherent $^4\mathrm{He}(e, e'\gamma p)$, $^4\mathrm{He}(e, e'\gamma^3\mathrm{H})$ and $^4\mathrm{He}(e, e'\gamma n^3\mathrm{He})$ channels. The main objectives of the experiment are to extract, in a model-independent way and for the first time, the real and imaginary part of the Compton form factor from the coherent channel, and to study the $x_{Bjorken}$- and t-dependence of the generalized EMC ratio, defined using the beam-spin asymmetry on ^{4}He normalized by that of the proton. The hope is to shed new light on the origin of the EMC effect.

Although the objectives are completely different, the two experiments ran together under identical conditions. They used a ^{4}He gas target at 6 atm and a new Radial Time Projection Chamber (RTPC) to detect recoiling α-particles in coherent scattering of electrons from helium target nuclei. The new RTPC was built using the same general principals as the BoNuS detector, but with improved characteristics. The most notable improvement was a much higher rate capability. New readout systems enabled running CLAS DAQ in full pipeline mode with a trigger rate of 3 kHz and 80% live time, compared to 0.5 kHz for BoNuS. Other improvements included a fully cylindrical geometry of the drift region and the GEM assembly. Elimination of the support wall between the two sides of the detector improved the geometrical acceptance. In order to lower the detection momentum threshold, the target cell had thinner walls, 30 μm instead of the 50 μm used in BoNuS. Detector components are now being calibrated in preparation for the data analysis.

Update: 12 GeV Upgrade

Almost two years into a five year construction period, 12 GeV construction activities are changing the landscape of the JLab site. The Central Helium Liquefier #2 building is complete and the new Hall D Complex will be ready for equipment in November 2010. Most major contracts have been awarded and components are now arriving, including cryomodule cavities, beamline magnets, power systems, and Hall D barrel calorimeter modules. Numerous university groups have begun detector construction. Installation activities in the accelerator tunnel began during scheduled 2010 shutdown periods, and will be followed by significant 12 GeV installation work for a six-month period starting in May 2011 and a twelve-month period starting in May 2012. The project remains on schedule and budget, with the first beam commissioning planned for 2013. The 12-GeV physics program continues to develop. In August 2010, the Program Advisory Committee (PAC36) will meet and continue its work to assign beam time and rate scientific priorities for the thirty-two approved experiments.

8.4 The Proton Radius

(Communicated by Ronald Gilman – rgilman@physics.rutgers.edu.)

A recent measurement of the size of the proton (R. Pohl *et al.*, Nature 09250, July 2010) has generated surprise and great interest. The measurement determines the proton radius from the Lamb shift of the muonic Hydrogen atom. Since the muon is about 200 times heavier than the electron, the effects of the finite proton size are enhanced, yielding greater sensitivity to the proton radius. The resulting radius, $r_p = \sqrt{\langle r_p^2 \rangle} = 0.84184(67)$ fm, is ten-times more precise than the previous CODATA evaluation (P. Mohr, B. Taylor, and D. Newell, Rev. Mod. Phys. 80, 633, 2008), but 5σ (previous uncertainty) smaller than the previous average. Compared to the electron scattering analysis (I. Sick, Phys. Lett. B 576, 62, 2003), it is 3.1σ (electron-scattering uncertainty) below the previous result, which was consistent with the atomic physics measurements.

The result is generating theoretical and experimental interest. One might imagine the result is indicative, for example, of: new physics; two-photon effects; insufficiently precise theory for the new high-precision data; or inadequate measurements of the proton elastic and/or inelastic structure at low Q^2. The first three topics are being actively pursued by a number of theorists.

The experimental knowledge of the nucleon at low Q^2 might be improved by several new *ep* scattering experiments. A MAMI Mainz high-precision low-Q^2 cross-section experiment has just submitted an article to Phys. Rev. Lett., also posted as arXiv:1007.5076; the proton electric and magnetic radii are a focus of the article. A JLab Hall-A low-Q^2 high-precision form-factor-ratio experiment has presented results at several meetings, including GHP09, and is expected to publish soon. From Nov 2011 through March 2012, even lower Q^2 experiments are planned to run at JLab to determine the form factor ratio and the inelastic spin-structure functions, if resources can be found to support the experiments. Together these experiments should lead to a better determination of the radius from elastic *ep* scattering as well as providing input needed for two-photon corrections.

This GHP Newsletter was edited by Craig Roberts for the Executive Committee.