

Working Group Reports to the IUPAP C&CC Meeting

November 5-6 2010

WG.1: International Committee for Future Accelerators (ICFA)

1. Introduction

During the past year there were two ICFA meetings: on 25/26 February 2010 at BNL and on 24 July 2010 during ICHEP2010 in Paris. At the BNL meeting, directors of the world's major particle physics laboratories were also invited; this allowed a more in-depth discussion of particle physics' current status and future prospects.

The current ICFA membership is given in Appendix I.

2. Particle Physics Situation---Now and the Remainder of the Decade

There is concern on how to position the field for the remainder of the decade; many things have changed in the recent past, including the LHC schedule and discussions on other projects such as neutrino facilities and B-factories. All major future facilities are counting on international collaboration, and there is a need to look at the whole picture of global projects. There are at present three existing regional roadmaps for the field, but not a global one. ICFA is a well-suited body to produce a document describing opportunities for particle physics across the world, with a list of currently open questions and possible future ways to answer them. It was agreed that ICFA will produce such a document.

3. Revising the ICFA Guidelines

A discussion was initiated on whether the ICFA Guidelines (originally adopted in 1980) should be revised. The major possible point of issue is Guideline #5, which says that experimental groups should not be required to contribute to accelerator or experimental area running costs. Projects are becoming larger and more expensive, so costs to the accelerator host country are increasing. The general feeling was to not change the existing model at this time but to add a sentence saying that allocation of operating costs for a large international project should be part of the agreement for building the project, and should be agreed by the parties before project approval. Discussion will continue at a future ICFA meeting.

4. ILCSC

The International Linear Collider Steering Committee (ILCSC) was set up by ICFA to facilitate the global collaborative effort on the ILC.

Evaluation of the three submitted detector LOIs was carried out in 2009 by the International Detector Advisory Group (IDAG); IDAG in September 2009 recommended validation of two of the LOIs (ILD and SiD) and this recommendation was approved by ILCSC. GDE and the detectors are on track for design reports in 2012, and discussion has started on post-2012 ILC activities including governance of a future ILC project. Some ideas on this have been presented to the particle physics community for comments. There is growing interaction between ILC and CLIC on both accelerator and detectors. Many lab directors were present at a February 2010 ILCSC meeting for a discussion on the coordination of the priorities of ILC accelerator and detector activities with the priorities of the labs so that ILC activities at the labs can progress.

In 2008, ILCSC set up the Project Advisory Committee (PAC) to assist it in the oversight of

both the GDE accelerator activities and the ILC detector activities. The PAC held a two-day review of the status of the accelerator and detector work in November 2009 and another in May 2010; its reports were made to ILCSC and are publicly available on the Web; the next PAC review is scheduled for November 2010. The PAC Chair is currently Lyn Evans.

5. ILC: Accelerator

The current goals are to optimize cost/performance, complete crucial demonstrations and risk mitigating R&D, update the value estimate and schedule, and produce a Project Implementation Plan. The major short-term goals are dominated by SCRF; 33 MV/m has been reached in a production 9-cell cavity, and SCRF competence is emerging in all 3 regions. The SB2009 proposals were aimed at cost containment; they include the single-tunnel solution, the undulator-based positron source at the end of the electron linac, the ~ 3.2 Km damping rings, and the revised central region tunnel layout. The total savings would be ~ 12-13%. The GDE's Accelerator Advisory Panel and the PAC recommended that these proposals be carried out using a change-control process.

6. ILC: Detectors

Detector activity will be monitored through 2012 by IDAG. Adequate detector resources through 2012 are not assured, and there are currently resource imbalances among the 3 regions. A Working Group is studying the effects of the SB2009 accelerator proposals on the ILC physics program.

7. International Committee for Ultra Intense Lasers (ICUIL)

A joint task force of ICFA and ICUIL has been set up to study laser acceleration of particles.

8. Particle Physics Data Preservation

An international study group has been examining the case for, and possible mechanisms to carry out, preservation of data from particle physics experiments. ICFA endorsed this activity.

9. ICFA Seminar

The next ICFA Seminar will be held at CERN on 3-6 October 2011.

10. Reports

Reports were presented to ICFA meetings on activities of ICFA's Panels, InterAction, C11, FALC and of each country and lab represented at the meeting.

ICFA MEMBERSHIP

July 2010

CERN Member States

R. Heuer
J. Mnich
T. Nakada

USA

R. Brock
P. Drell
P. Oddone

Japan

S. Komamiya
A. Suzuki (Chair)

Russia

E. Levichev
A. Zaitsev

Canada

W. Trischuk

China

H. Chen

Other Countries

C. Avila
I-S. Ko
G. Taylor

C11

P. McBride

(Secretary:

R. Rubinstein)

WG.2: Communication in Physics

1. Meeting held on 30 September 2009 at APS Ridge NY. Approved minutes are attached.
2. Two attachments are given related to copyright. The minimum privileges for Authors suggested by the WG have, through the Secretary –General, been forwarded to IUPAP Council
3. The SE Asia representative has now been appointed. Dr Lu Li is the Deputy Director of the Chinese Academy of Science.
4. Progress on ID by “ORCID” led the WG to conclude that a meeting in September 2010 was no longer appropriate. Instead, the WG intends to have a meeting on “Models of Peer Review”. JEE is working this up into a firm proposal which has been warmly welcomed by members. The proposed date is April/May 2011.

John Enderby

September 2010

Notes on the Meeting of IUPAP Working Group on Communications

Location: APS, Ridge NY

Date: 30 September 2009

Present: Gene Sprouse, Ken-Iche Ueda, Rudiger Voss, John Enderby

Apologies: Franck Laloe (who has indicated his wish to stand down) and Enrique Canessae (who has indicated his willingness to continue)

1. *Author ID*

This topic was discussed at our last meeting and there was a general consensus that a robust and unified system of author ID was now a matter of urgency. GS made a short presentation of IROW 2009 held at Toronto in which Jeff Bilder of CrossRef played a key role. It was agreed to start planning a meeting on Author ID for September 2010 (see 9 below).

2. *Progress on SCOAP³*

RV gave an up-to-date report on progress. Although the time-table had slipped, the signs remained favorable. Concern was expressed that the Japanese had so far not committed themselves to the project and that the US participation was to be at the institutional level. RV agreed to keep the group informed of progress.

3. *Copyright*

JE introduced this with a Power Point presentation (appendix 1) he had made to the Science Advisory Committee (SAC) of IOPP. After discussion it was agreed that IUPAP Council should be invited to endorse the Working Group's (WG) proposals. These are listed in appendix 2.

4. *Role of Journals*

It was widely accepted that paper based journals were no longer the main source of information for researchers. Nevertheless they remain of crucial importance to academics in terms of their career development, to funders of research in order to justify their choice of subjects/people for financial support and to the general public to ensure that the results of research had been properly checked and authenticated. We seek a declaration at the IUPAP level emphasizing the importance of peer reviewed publishing as an essential part of the scientific enterprise.

5. *S E Asia*

In deciding on our recommendations for membership of the group (8 below) representation from SE Asia was deemed necessary.

6. *Developing Countries*

IUPAP should reaffirm its commitment to the provision of free or heavily discounted research content through INASP and similar organizations.

7. *Future of the WG and its terms of reference*

Given the importance of communication in Physics, the WG felt that it was fulfilling a need and should

therefore continue. Nevertheless, its terms of reference should be clarified and JEE was asked to discuss this issue with the Secretary-General (Bob Kirby Harris).

8. Membership

A proposal from the French as a replacement to Franck was received after the meeting. Details of the candidate, Xavier Bouju, are attached (appendix3) and after discussions with the Secretary- General, JEE recommends that the proposal is accepted.

So for 2010, the Committee will be, subject to approval by IUPAP:

John Enderby (Chair)
Gene Sprouse
Rudiger Voss
Enrique Cannessae
Ken-Iche Ueda
Xavier Bouju
S E Asia representative
Brazil representative

9. Conference Topic etc.

Author ID to be held in September 2010 at CERN (subject to availability)

As a first step JEE will contact Jeff Bilder at CrossRef and then discuss with members the creation of a Programme Committee.

10. Date of next meeting.

Agreed to hold the next meeting of the WG at CERN immediately before the Conference.

11. AOB

There being no other business the meeting closed. Members expressed their thanks to Gene and his staff for the hospitality of APS and the smooth organization which had made our visit so pleasant.

ACTIONS:

All: please comment on the draft minutes

RV: arrange for PP presentations to be available

RV: to keep the WG informed of OA progress

RV to investigate availability of CERN for the Author ID meeting

GS and K-I U to identify the E-i-C of the Asian Physics Journal

GS to identify the colleague from Brazil

JEE to contact Jeff Bilder

JEE to discuss membership/terms of reference with R K-H

(Note added: All actions complete)

WG.4: PANAGIC

1. Introduction

The Particle and Nuclear Astrophysics and Gravitational International Committee (PaNAGIC) was established by IUPAP in 1998 as an inter-Commission committee to support the world-wide exchange of ideas and help in the convergence of the international scientific community in the large scale activity in the emerging field of particle and nuclear astrophysics and cosmology and of gravitational waves.

Its purposes are:

- To promote and provide a forum for international coordination of large-scale projects in these areas of research.
- To develop a common culture in these emerging and rapidly evolving fields.
- To promote and help to organize regular world-wide meetings, workshops and schools in these areas.

These interdisciplinary sectors include:

- The study of basic constituents of matter and their interactions by non-accelerator means.
- The study of the sources, acceleration mechanism and propagation of high energy particles in the Universe.
- The study of nuclear and particle properties and processes of astrophysical and cosmological interest in the Universe.
- The study of gravity, including the detection and the astrophysical sources of gravitational waves.

PaNAGIC has the status of an IUPAP Working Group. Its mandate was extended at the 25th IUPAP General Assembly in October 2005 in Cape Town, South Africa, until the time of the next General Assembly. PaNAGIC reports to C4, C11, C12 and C19 with a primary relation to C4 and a connection to AC2. The Committee has 15 members, selected primarily on the basis of intellectual leadership and representing the major components of the field. One member is appointed by each of C4, C11, C12 and C19. One of the members acts as a link to AC2. The present and past membership is included below.

2. PaNAGIC Activities during 2009/10

The main activity of PaNAGIC this year has been work in support of the Global Science Forum' working group on Astroparticle Physics. The general theme of the work has been that as experiments in this field seek higher and higher sensitivities to achieve science of a very fundamental importance, the experiments tend to increase in scale by orders of magnitude in size, manpower, and cost. Many are getting to the point where, at least for the next generation, the projects cannot be executed by a single country or region but must involve global cooperation. Examples are easy to find: In gravitational waves, the detectors are close to the sensitivity expected to detect gravity waves but the next steps include going underground or out into space; the direct searches for WIMP dark matter critical to understanding the makeup of our universe are growing from the kilogram scale to the ton scale, giving sensitivity to much of the super-symmetric model predicted space; similarly, the search for neutrino-less double beta decay is moving to the ton scale where the inverted hierarchy of neutrino mass can be fully searched and the higher part of the normal hierarchy can be probed with the objectives of finding the absolute mass scale for neutrinos and shedding light on the matter/anti-matter unbalance in the universe; the search for the highest energy messengers from outer space are moving to the cubic kilometre scale. All of these critically important areas of research will hit funding or other resource limits soon if a more global approach is not taken. The global approach involves both the scientific community developing a coherent program and the funding agencies considering these programs in a coherent fashion. Both steps are recommended in this report. The Global Science Forum is comprised of funding agencies and the delegates to the working group were mainly from the agencies. There were in addition, scientific advisors who were

chosen mainly from the ranks of PaNAGIC. The report of this working group will be made public once it has been considered by the Forum.

PaNAGIC held its second meeting of underground science laboratory directors. The initial meeting of this group was held under the auspices of PaNAGIC last year at the TAUP conference. This year the meeting was held in Athens at the Neutrino 2010 meeting. There is strong support within the community to make this a regular event where the directors can discuss issues of common interest.

It is time to renew the membership of PaNAGIC. The current mandate for PaNAGIC expires next year and at the time of last renewal it was clear that a new revised role for the committee would have to be developed. This development is in progress and, at the same time, there is a general view that the method for selecting new members needs to be re-examined.

3. Membership of PaNAGIC

Charles Baltay (2008 ---)
Stavros Katsanevas (2004 ---)
Leonid Bezrukov (2006 ---)
Paolo Lipari(2004 ---) [C4]
Hesheng Chen (2008---)
Hitoshi Murayama (2008 ---)
Eugenio Coccia (2006 ---)
Angela Olinto(2004 ---)
Victoria Fonseca (2004 ---) [C---19]
Bernard Sadoulet (2008 ---)
Masa-Katzu Fujimoto (2004 ---)
David Sinclair (2004 -- -) Chair
Rohini Godbole (2004-- -) [C11]
Christian Spiering (2008---)
James Hough (2007 ---) [AC---2]

Gravitational Wave International Committee report to PaNAGIC 25 October 2010

(prepared by Stan Whitcomb, Caltech [Secretary] and Jim Hough, University of Glasgow [Chair])

The Gravitational Wave International Committee (GWIC) was formed in 1997 to facilitate international collaboration and cooperation in the construction, operation and use of the major gravitational wave detection facilities world-wide. The membership of GWIC represents all of the world's active gravitational wave projects. In 2008, GWIC invited the three pulsar timing collaborations which are searching for very low frequency gravitational waves to join, so now it represents projects covering gravitational wave frequencies from nanohertz to kilo hertz. Each project has either one or two members on GWIC depending on size. Because the GWIC representatives are generally the leaders of each project, GWIC has access to broad expertise from throughout the community. GWIC also includes representation from the International Society on General Relativity and Gravitation and from the astrophysics/theoretical relativity community. GWIC meets annually, with recent meetings in Hannover (2010), New York City (2009), Pisa (2008), Sydney (2007), and Maryland (2006).

GWIC Activities in 2009-2010

GWIC convenes the biennial Edoardo Amaldi Conferences on Gravitational Waves, sponsored by IUPAP as a "class B" Conference. The Amaldi meeting is considered by many in the gravitational wave community to be their most important international gathering. The members of GWIC serve as the Scientific Organizing Committee for the Amaldi meetings. Amaldi 9 will be held on 10-15 July 2011 in Cardiff University. In 2006, GWIC established an international prize, to be awarded annually to an outstanding Ph. D. thesis based on research in gravitational waves. The 2011 GWIC thesis prize was awarded to Holger Pletsch, AEI Hannover, and presented on the first day of GR19 in Mexico City. The number of theses nominated has grown every year since the prize was established, demonstrating the growing interest in gravitational waves. In 2007, GWIC appointed a subcommittee to prepare a global road-map for the field of gravitational wave science, with the perspective to optimize the global science in the field. The charge to the committee is to cover both ground- and space-based detectors with a 30-year horizon. The committee obtained broad input from the communities involved to identify relevant science opportunities and the facilities needed to address them. At its June 2010 meeting, GWIC accepted the draft report (http://gwic.ligo.org/roadmap/Roadmap_100814.pdf), subject to some minor revisions. GWIC has already begun to implement some of the recommendations contained in the roadmap.

During 2009/10 GWIC provided letters of support to three different projects which would further the goals of the GWIC Roadmap:

- The Japanese project LCGT (Large Scale Cryogenic Gravitational Wave Telescope) for a 3 km underground cryogenic interferometer, has had initial construction funding approved. GWIC letters in support of LCGT seem to have helped. This approval follows the approval last year of Advanced Virgo, and these instruments together with Advanced LIGO and upgraded GEO will be the basis of
- a major worldwide network.
- GWIC provided a support letter to the US NSF for LIGO-Australia, the collaborative effort to place an Advanced LIGO detector in a site to be provided by the Australian gravitational wave community and operated as a component in the LIGO network.
- GWIC also provided letters in support of IndIGO, the gravitational wave collaboration being set up in India.

We were pleased to learn in June that LCGT had received approval and initial construction funds, in August that the National Science Board (of the US) approved LIGO-Australia subject to Australia

agreeing to fund its portion of the project, and that IndIGO had received funds to construct a 3m prototype detector to help develop expertise in interferometry.

GWIC has provided inputs to both the OECD Global Science Forum and the ASPERA astroparticle roadmaps.

Membership of GWIC

Chair: James Hough

ACIGA: Jesper Munch

ALLEGRO: William O. Hamilton

AURIGA: Massimo Cerdonio

Einstein Telescope: Michele Punturo

EXPLORER/NAUTILUS: Eugenio Coccia

European Pulsar Timing Array (EPTA): Michael Kramer

GEO 600: Karsten Danzmann, Sheila Rowan

LIGO, including the LSC: Jay Marx, David Reitze

LISA: Thomas Prince, Bernard Schutz, Robin Stebbins, Stefano Vitale

MiniGRAIL and other Spherical Acoustic Detectors: Giorgio Frossati

NANOGrav: Andrea Lommen

Parkes Pulsar Timing Array (PPTA): Dick Manchester

TAMA/CLIO/LCGT: Seiji Kawamura, Kazuaki Kuroda

VIRGO: Francesco Fidecaro, Benoit Mours

Theory Community: Clifford Will

Executive Secretary: Stan Whitcomb

WG.5: Women in Physics

- 1) The 4th IUPAP International Conference on Women in Physics is planned in 2011 (ICWIP2010) and will be held in Stellenbosch, South Africa, April **5th to 8th**, 2010: (<http://www.acitravel.co.za/event/index.php?f=index>). The conference is organizing by the Working Group as the International Organizing Committee and hosted by the IOP South Africa(attached is the 2nd announcement). Dr. Igle Gledhill, member our Working Group, is the chair of the Local Organizing Committee of ICWIP2008.
- 2) The contacts between the Working Group and regional Working Groups are improved through:
 - a) with countries assigned to each member of the Working Group, who will take responsibility for liaison with those countries;
 - b) on the web page (<http://wgwip.df.uba.ar/>) with new information;
 - c) webpage links, activities and news from the Regional Working Groups are posted on the web page.
 - d)
- 3) Scholarship programme: 2010 a seventh round of the IUPAP/UNESCO program to fund the attendance of women from developing and eastern European countries at regional conferences and schools. We have support 20 grantees with \$350 to \$800
- 4) A new global survey is on the web (<http://www.aipsurveys.org/global/>). The survey including both men and women and is funding form the USA. The Working Group had a further meeting in Berlin (Germany), July 2009 and in Stellenbosch, April 2010. The members in the group are: B. Sandow (Chair, Germany), S. Dawson (Vice Chair, Argentina), I. Gledhill (South Africa), Arame Boye Faye (Senegal), B. Hartline (USA), Renee Horton (USA), S. Tajima (Japan), Y. Park (Korea), Man Ling Sui (China Beijing), Ching Ray Chang (China Taipei), S. Narasimhan (India), A. Borg (Norway) and Guillian Butcher (UK).

Dr. Barbara Sandow
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Freie Universität Berlin
Institut für Experimentalphysik
Arnimallee 14
D-14195 Berlin

WG.7: International Committee on Ultrahigh Intensity Lasers (ICUIL)

International Ultra-high Intensity Laser Initiatives:

- **Promoting high intensity laser infrastructure around the world**
- **Motivating a path beyond laser-matter interaction in the relativistic regime toward ultra-relativistic sciences**
- **Providing vision for potential laser applications in accelerator science**

The International Committee on Ultra-High Intensity Lasers (ICUIL) is actively concerned with the growth and vitality of the whole international field of ultra-high intensity laser science, technology and education. During 2010, the ultra-intense laser community made great progress in areas of science and technology. This included wide participation in facility planning for lasers approaching the exawatt power level and collaborative study of laser acceleration, involving future laser sources and appropriate laser acceleration science and technology. Our primary goal is to promote unity and coherence in the field by convening conferences dedicated to ultra-high intensity lasers and their applications. The 2010 ICUIL Conference was a spectacular success with over 150 attendees representing 16 countries in celebration of the 50th year anniversary of the laser and the 25th year anniversary of the high-intensity Chirped Pulse Amplification (CPA) laser. Today, small to medium-scale, ultra-intense femtosecond lasers are at the core of scientific domains such as plasma physics, particle physics, nuclear physics, astrophysics, and cosmology. And with the high energy ultra-intense laser of tomorrow, new frontiers of extreme light will be reached.

ICUIL Related Science and Technology

- ICUIL and ICFA have exercised their Joint Task Force (JTF) on Future Applications of Laser Acceleration to promote and encourage international collaboration between the accelerator and laser communities. The first strategy meeting, hosted by I. Hoffmann, was held at GSI Darmstadt, on April 8-10. The discussion was centered on the technology needed to meet the challenge of future accelerators that require ultra-intense, high average power lasers. The event was opened by H. Eickhoff, Technical Director of GSI and W. Leemans from LBNL, chairman of the newly established JTF. Forty-seven participants came from China (1), France (4), Germany (18), Japan (4), Switzerland (2), the UK (4) and the US (14) to discuss the laser requirements for High Energy Physics applications, namely the next-generation high energy collider, compact X-ray sources such as free electron lasers, ion strippers, gamma-gamma collider drivers, and laser-driven hadron therapy machines. Although the JTF identified the technological candidates to be the fiber laser, thin disk laser, and ceramic laser, the laser's average power and efficiency are two critical bottlenecks for collider applications today. Though it may take many years of basic research and subsequent development efforts, these technologies could potentially meet all requirements in the future. In addition, the ICUIL Chairman has worked strategically to increase visibility of the JTF. On June 3, T. Tajima gave an accelerator seminar at CERN to strengthen the mutual understanding and collaboration. He also attended the ICFA GA on July 24 where strong support for the JTF was voiced. Collaborative planning on long-range research, such as laser driver development, was suggested by CERN scientists.
- Europe's commitment towards ultra-high intensity physics and laser fusion continues to show strength through the High Power Laser Energy Research (HiPER) and Extreme Light Infrastructure (ELI) initiatives. The ICUIL ex-chair, G. Mourou, led the effort to have ELI funding approved at the level of 800M Euro. In addition, the current ICUIL chair and chair of the Science Advisory Committee, T. Tajima, played an essential role in persuading the EU to support this project. Thirteen countries from the EU are moving forward on the ELI initiative. The aim of the infrastructure is to produce the highest peak power to perform laser-matter

interaction in a fundamentally new regime. The ELI infrastructure is being located at the Czech Republic, Hungary and Romania. The location of the final integration site will be decided in 2012. In addition, ICUIL supported the European celebration of the 50th anniversary of the laser at the Paris Gala. Invited by ELI's coordinator and ICUIL advisor, G. Mourou, six Nobel Prize winners gathered in Paris, on June 22 and 23 to celebrate the 50th anniversary of the first laser demonstration by Theodore Maiman on May 16, 1960.

- Several high intensity laser projects within the USA such as OMEGA EP at LLE, NIF ARC and Titan at LLNL, the Z-PW at SNL and Trident at LANL, have continued to advance over the last year and are ushering in a new age of advanced experimental capability. The OMEGA EP facility has produced more than 1000 laser shots with a comprehensive set of on-shot diagnostics. An LLNL–LLE experiment on OMEGA EP resulted in the highest positron production rate achieved in the laboratory at approximately 10^{12} positrons generated with 1 kJ in 10 ps. ICUIL members continue to play leadership roles in many of these projects.
- The Asian Intense Laser Network is a thriving organization which is producing many eye-catching results in the areas of intense laser science and technology. In China, the megajoule-class SG-III laser facility continues to be constructed at the Research Center of Laser Fusion, China Academy of Engineering Physics. In Japan, the Institute for Laser Engineering (ILE) at Osaka has made a strategic commitment towards High Field Science. In Korea, the Ultrashort Quantum Beam Facility (UQBF), a petawatt-class laser facility located at the Advanced Photonics Research Institute (APRI), is near completion. The UQBF upgrade to 1 PW was completed and a 2 PW capability is anticipated within the next year. The UQBF is dedicated to research fields such as high energy particle beam acceleration, X-ray FEL, X-ray lasers, high field physics, and astrophysics.
- The International Science and Technology Center (ISTC) supported Russian participation at the 2010 ICUIL Conference. W. Gudowski presented a talk entitled, "Prospects of International Cooperation in Ultra-High Intensity Lasers for Civil Applications within the frame of the ISTC Activities." Y. Malakhov provided a book, edited by S. Garanin, describing Russian developments in high power lasers at the terawatt and petawatt level. A. Sergeev, member of ICUIL, presided over three talks from the Russian Federal Nuclear Center. This special ISTC session was concluded with statements of strong support from members of the ICUIL board.

ICUIL Activity Overview

The ICUIL is actively concerned with the growth and vitality of the whole international field of ultra-high intensity laser science, technology and education. Our goals are to provide a venue for discussions, among representatives of high-intensity laser facilities and members of user communities, on international collaborative activities such as the development of the next generation of ultra-high intensity lasers, exploration of new areas of fundamental and applied research, and formation of a global research network for access to advanced facilities by users. To achieve these stated goals, ICUIL has completed the activities listed below in 2010.

ICUIL Biennial Conferences

The 4th ICUIL Conference was held from September 26 to October 1 at Watkins Glen, New York, USA. This conference was hosted by the University of Rochester's Laboratory for Laser Energetics with the ICUIL Secretary, T. Kessler, serving as the General Chairman. The program included 60 oral presentations and 45 poster presentations. The conference attracted over 150 participants from all over the world including Canada, China, Czech, France, Germany, India, Italy, Japan, Hungary, Korea, Portugal, Rumania, Russia, Sweden, United Kingdom, and United States. Following the success of the 2004 (Lake Tahoe, USA), 2006 (Cassis, France), 2008 (Tongli, China), 2010 (Watkins Glen, USA) conferences, the 2012 conference promises to be another excellent opportunity for ICUIL to promote unity and coherence in the field of ultrahigh intensity lasers and their applications.

2010 Annual General Assembly (GA) Meeting

A nine member quorum was exceeded during the annual GA meeting held on the last day of the 2010 ICUIL Conference. The agenda for the three-hour meeting consisted of member rotation, the 2012 ICUIL Conference, website development, the world map, fund raising, the annual newsletter, and the ICUIL/ICFA JTF. The five-member ICUIL Board have successfully divided up responsibilities involving conference planning, annual newsletters, website development, corporate fund raising, and collaboration with related fields in physics. Bi-monthly teleconferences have been used effectively to keep each of these activities alive despite the purely volunteer nature of the ICUIL group.



2010 ICUIL Conference Attendees

ICUIL Member Rotation

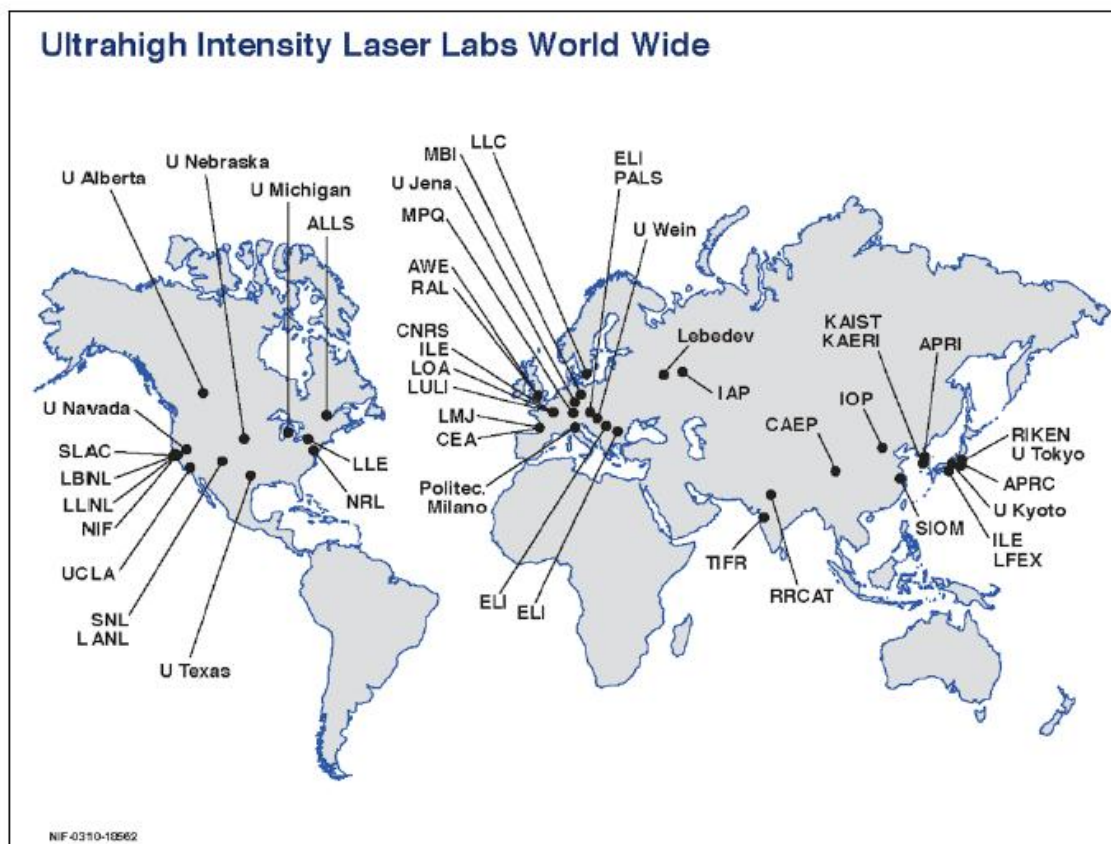
Member rotation has been carried out, in small steps, to maintain continuity and ensure that ICUIL continues to advance while maintaining balance between the various high field science sections of IUPAP. Three of the seventeen-member ICUIL are being replaced in 2010. Two new excellent candidates were identified during the 2010 annual GA meeting in Watkins Glen, New York. A third candidate is being sought from the growing laser infrastructure associated with the ELI initiative.

ICUIL Website

The ICUIL website continues to be managed in France in collaboration with the Extreme Light Infrastructure (ELI) project. The website has a professional website manager in close contact with the ICUIL chairman, secretary, and members involved in improving web presence. One of the features of the ICUIL website is a world map which highlights the high intensity laser facilities around the world. A recently updated world map was unveiled at the 2010 Conference. An overview talk, entitled "A Tour of the ICUIL World Map," was presented by C. P. J. Barty (LLNL), where he described a vision for the World Map which includes geographical, historical, and performance-based information access on the ICUIL website.

ICUIL Newsletter

The first ICUIL Newsletter was sent out to the high intensity laser (HIL) community on February 2010. The chief editor, C. Labaune, garnered the illustration and publication resources to distribute an eight-page newsletter to hundreds of readers, highlighting the major laser construction and laser science projects within the HIL community. Following this first publication, ICUIL's goal is to publish the newsletter annually.



World Map of Ultra-Intense Laser Facilities

Fund raising

ICUIL has continued to work towards expanding its corporate support program to afford maintenance of the ICUIL website and support biennial conferences. The newest addition to the ICUIL Board, its Treasurer, was successful in securing corporate support during the non-conference year. In addition, the ICUIL Treasurer, the conference Chairman, and the conference co-chairmen worked together to attract 15 corporate sponsors to the 2010 Conference in Watkins Glen. Exhibitors of lasers, optics, and diagnostic equipment were able to participate in all the technical and social activities at this event. In addition, the University of Rochester's Laboratory for Laser Energetics, the International Science and Technology Center, and the Korean National UQBF program provided generous support for the 2010 Conference.

Workshop Organization

One of ICUIL's goals has been to promote exchange between scientists and engineers by organizing highly focused technical sessions at the biennial conferences. As part of the technical program at the 2010 conference in Watkins Glen, ICUIL held its first such workshop on the critical technological area of CPA Compressor Gratings. Six conference attendees from industry, academia, and government laboratories formed an expert panel to discuss grating design, fabrication, and laser damage testing. International collaborations were nurtured by this workshop and are likely to be the impetus behind increased energy capability of future high energy Petawatt lasers.

WG.9: International Cooperation in Nuclear Physics (ICNP)

IUPAP WG.9 Symposium on Nuclear Physics and Nuclear Physics Facilities

The major activity of WG.9 in 2010 was a Two-Day Symposium on Nuclear Physics and Nuclear Physics Facilities worldwide, which was held at TRIUMF in Vancouver, BC, on July 2 – 3, 2010. The purpose of the Symposium was to provide a forum where the international proponents of nuclear science could be appraised of and discuss the present and future plans for nuclear physics research as well as the upgraded and new research facilities required to realize those plans. The Symposium was held as a response to the mandate given to the IUPAP Working Group (WG.9) on International Cooperation in Nuclear Physics by the OECD Global Science Forum in a missive from its Chair, Hermann-Friedrich Wagner, following the recent report of the OECD Global Science Forum Working Group on Nuclear Physics.

Three half-day presentations were organized each by NSAC (the US Nuclear Science Advisory Committee), by NuPECC (the Nuclear Physics European Collaboration Committee), and by ANPhA (the Asian Nuclear Physics Association).

The presentations focused on the main themes of nuclear physics today:

i) Can the structure and interactions of hadrons be understood in terms of QCD? ; ii) What is the structure of nuclear matter? ; iii) What are the phases of nuclear matter? ; iv) What is the role of nuclei in shaping the evolution of the universe, with the known forms of matter only comprising a meager 5%? ; v) Which is the physics beyond the Standard Model?. The presentations led to extensive discussions among the various representatives. The final half day, following a synopsis of the presentations and discussions by Robert E. Tribble of Texas A&M University, saw first a panel discussion by the three nuclear physics groups mentioned above and next a series of statements by science administrators (DoE, Office of Science Nuclear Physics, NSF Nuclear Physics, INFN Third Commission, IN2P3/CNRS, CEA/Service de Physique Nucleaire, the Japan Ministry of Education, Science, and Technology, the Korea Research Council, and the China Institute of Atomic Energy).

The Symposium brought together, for the first time, nuclear physics researchers, Laboratory Directors, and Nuclear Science Administrators in a worldwide setting. It showed a vigorous field of nuclear physics with demanding forefront challenges and large nuclear physics facilities being upgraded or coming on line presently or in the near future (CEBAF 12 GeV at Jefferson Laboratory, the FRIB at MSU, SPIRAL2 at GANIL, ISAC at TRIUMF, RIKEN Nishina Center, J-PARC, FAIR at GSI, upgraded RHIC at BNL, and in the more distant future EURISOL). IUPAP WG.9 has given great encouragement to efforts aimed at strengthening regional and international nuclear physics cooperation. At the Symposium the nuclear physics community was informed of the formation of a Latin America Nuclear Physics Association (ALAFNA) to strengthen nuclear physics in Latin-America. Similar attempts may be undertaken in Africa.

Further details may be found going to the website www.iupap.org under 'Working Groups': WG.9 with its website.

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