



Welcome

On behalf of the organizing committee and our sponsors, we would like to extend a warm invitation to you to attend the International Conference on Physics Education 2009 (ICPE 2009) in Bangkok, Thailand from 18 to 24 October 2009.

This ICPE 2009 in Thailand is proposed as one in the world renowned series supported by the IUPAP. Given the significant success that the previous conferences (Delhi 2005, Tokyo 2006 and Marrakech 2007) of the ICPEs have drawn, we envisaged that this event will add another brick to what is starting to be a solid foundation towards a path to sustainable development in physics education.

The organizing committee will bring together leading scientists in these fields from all countries both members and non-members of the IUPAP. Invitations to speakers are being issued now and details of the confirmed speakers will be posted on the conference web page.

The venue, Bangkok, is Thailand's capital and world major tourist city. Bangkok, well connected globally by all major international airlines through its international airports, is also the gateway to all countries' world heritages and attractions. The program will include time to visit these national treasures.

We look forward to welcoming you in Bangkok. For any questions regarding the conference, please contact the conference secretary or browse through our website.

Background

For nearly four decades, the physics community has witnessed the development of a relatively new area of interest; that of physics education research. Many academics acknowledge the importance of physics education research and its role in exposing students' learning difficulties in physics courses. In addition, difficulties in getting messages across on how important teaching and learning processes are to the success, and lack thereof, of the physics educational system at large have also been realized.

Research pertinent to physics education in the past have shown that the developments in various aspects at all levels have significant impacts on the educational system and how the

world progresses. Various organizations and institutes related to physics, both the already established and the newly founded, for instance IUPAP, APS, EPS, IOP, ICTP, LAPEN and ASPEN, to name a few, have expressed concern on the problem. Some have lent their hands to help while others have taken up responsibility to seriously support activities which can be foreseen as a way out.

Despite of differences in main focuses, the aforementioned organizations have some objectives in common. One of the major aims is to promote the exchange of information and views among the international community of physicists, especially in the field of physics education. As it is widely realized that the communication of information concerning education in physics at all levels are crucial, most of the organizations are supporting this. Another objective is to assess the standards of the teaching and learning processes in the physics classrooms. Searches have been conducted to find ways in which improvements in the study of physics may be improved. This includes strategies to help physics instructors incorporate current knowledge about physics and forefront results of research in physics education into their courses and curricula.

All the aforementioned organizations have continually promote activities in physics education as well as raise community concerns through regularly organizing conferences. Emphasis has also been on supporting conferences especially in regions where there has been a lack of information distributed so far. Examples include WCPSED 2005 in South Africa and even the ones which come in series like ICPE 2005 in India, ICPE 2006 in Japan, and ICPE 2007 in Morocco. It is envisaged that such a continuous activity will add another brick to what is starting to be a solid foundation towards a path to sustainable development.

Since Thailand, or any South East Asian country, has never hosted any major international activity on physics education, it is anticipated that having a major “World Class” conference held here would significantly raise public awareness on this issue among those involved in Thailand, fellow regional neighbors, as well as physics educators throughout the world.

General Information

Organized by

- Faculty of Science, Chulalongkorn University
- Institute for Innovation and Development of Learning Process, Mahidol University
- Thai Physics Society
- Institute for the Promotion of Teaching Science and Technology

Joint Organizers, Sponsors and Supporters

- International Union of Pure and Applied Physics
- International Commission of Physics Education
- International Center for Theoretical Physics
- United Nations Educational Scientific and Cultural Organization
- Asian Physics Education Network
- National Astronomical Research Institute of Thailand
- Science Society of Thailand
- National Research Council of Thailand

- Commission on Higher Education, Ministry of Education of Thailand
- National Science Museum, Ministry of Science and Technology of Thailand
- Professional and Organizational Development Network of Thailand Higher Education
- Thailand Convention and Exhibition Bureau

Language

The official language of the conference is English

International Advisory Board

In alphabetical order. All have confirmed their acceptance.

- | | | |
|-----|---|---|
| 1. | Dr. Minella C. Alarcon
Senior Programme Specialist | Division of Basic and Engineering Sciences,
Natural Sciences Sector, UNESCO |
| 2. | Professor Khalid Berrada | Cadi Ayyad University of Marrakech
Morocco |
| 3. | Professor Ton Ellermeijer
President, GIREP | Amsterdam Mathematics, Science and
Technology Education Institute, Netherlands |
| 4. | Professor See Kit Foong | Institute of Physics Singapore
National Institute of Education, Singapore |
| 5. | Professor Judy Franz
Secretary General, IUPAP | American Physics Society
USA |
| 6. | Professor Pratibha Jolly
Chairperson, ICPE-IUPAP | Miranda House
University of Delhi , India |
| 7. | Professor Hiroshi Kawakatsu | Comprehensive Scientific Education Center,
Meijo University, Japan |
| 8. | Professor Jin Seung Kim | Department of Physics
Chonbuk National University, Chonju Korea |
| 9. | Professor Kenneth Krane | Department of Physics
Oregon State University, USA |
| 10. | Professor Priscilla Laws | Dickinson College
Carlisle, Pennsylvania, USA |
| 11. | Professor Alex Mazzolini
President, ASPEN | Swinburne University of Technology
Melbourne, Australia |
| 12. | Professor Cesar Mora
President, LAPEN | Centro de Investigación en Ciencia Aplicada
y Tecnología Avanzada, Mexico |
| 13. | Professor David Sokoloff | Department of Physics
University of Oregon, USA |
| 14. | Professor Katepalli R. Sreenivasan
Director, ICTP | The Abdus Salam International Centre for
Theoretical Physics, Trieste, Italy |
| 15. | Professor Dean Zollman | Department of Physics
Kansas State University, USA |

National Advisory Board and Organizing Committee

1. Representative Thailand National Commission for UNESCO
2. Prof. Dr. M.R. Jisnuson Svasti President,
The Science Society of Thailand
3. Prof. Dr. Sumonta Promboon Immediate Past President
The Science Society of Thailand
4. Prof. Dr. Tirapat Vilaithong President,
Thai Physics Society
5. Assoc. Prof. Weerapong
Pairsuwan President Elect
Thai Physics Society
6. Assoc. Prof. Boonrucksar
Soonthornthum Director, National Astronomical Research
Institute of Thailand
7. Assoc. Prof. Dr. Prasart Suebka Chairman, Development Network of Higher
Education (Thai POD Network)
8. Dr. Pornpun Waitayangkoon Deputy Director, Institute for the Promotion
of Teaching Science and Technology
9. Dr. Saran Poshyachinda Deputy Director, National Astronomical
Research Institute of Thailand
10. Prof. Dr. Supot Hannongbua Dean, Faculty of Science, Chulalongkorn
University, Bangkok, Thailand
11. Assoc. Prof. Dr. Bhinyo Panijpan The Institute for Innovation and Development
of Learning Process, Mahidol University,
Bangkok, Thailand
12. Assoc. Prof. Dr. Pintip Ruenwongsakul The Institute for Innovation and Development
of Learning Process, Mahidol University,
Bangkok, Thailand
13. Asst. Prof. Dr. Boonchoat
Paosawatyanong Department of Physics, Faculty of Science,
Chulalongkorn University, Bangkok, Thailand
14. Asst. Prof. Dr. Worawan
Bhanthumnavin Department of Physics, Faculty of Science,
Chulalongkorn University, Bangkok, Thailand
15. Dr. Narumon Suwonjandee Department of Physics, Faculty of Science
Chulalongkorn University
Bangkok, Thailand
16. Dr. Pornrat Wattanakasiwich Department of Physics, Faculty of Science
Chiangmai University, Thailand
17. Mr. Suchai Nopparatjamjornras The Institute for Innovation and Development
of Learning Process, Mahidol University,
Bangkok, Thailand

Note: Additional members from various institutions, industry, educational organizations, and funding agencies will be included as tasks progress.

Theme & Sub-themes

By the time the ICPE 2009 is held in October 2009, almost 5 years would have passed since physicists all over the world started celebrating World Year of Physics in early 2005. The conference theme “*Development and Innovation in Physics Education*” reflects one of the major aims of the conference which is to gather pertinent information on the advancement in physics education as a result of higher level of awareness from the events in 2005.

The conference primarily focuses on offering the floor for physics educators to present issues and examples which emphasize the aforementioned theme and the following sub-themes:

A. *Bringing physics education into the 21st century*

- A1. Setting the agenda for physics education reform
- A2. Physics curriculum design, development, and implementation
- A3. Bridging the gap in physics education between schools, universities and workplaces
- A4. Enhancing public awareness on the role of physics in the society

B. *Engaging physics education to the real world*

- B1. Exploring physics education within local and cultural contexts
- B2. Making physics education more inclusive for women and other under-represented groups
- B3. Teacher training and support for physics education initiatives
- B4. Enhancing community outreach

C. *Developing new and effective learning approaches for physics education*

- C1. Economically sustainable and appropriate technologies for physics education in developing countries
- C2. Current findings in physics education research
- C3. Linking physics teaching-learning practices to physics education research
- C4. Role of ICT and other new technologies in physics teaching-learning process

D. *Preparing physics education to provide solutions to global challenges*

- D1. Role of physics-related organizations and networks in promoting innovations in physics education globally
- D2. Role of physics education in providing solutions for probable global challenges
- D3. Renewing physics education by incorporating ideas from current and future emerging technologies
- D4. Physics in multidisciplinary contexts

Format

Materials under aforementioned theme and sub-themes will be addressed in the forms of:

- **Invited Plenary Lectures**; an overview of the conference theme would be addressed which would be inspiring to the conference audience. The organizing committee is inviting world-renown physicists up to Nobel laureate level to be Plenary Lecturers.

- **Invited Keynote Lectures;** various topics that address the theme and sub-themes would be shared to the participants by invited well-known physicists.
- **Workshops;** presentations of novel resource materials, opportunity for hands-on exposure as well as discussions will be offered.
- **Contributed Papers;** these will be presented in appropriate parallel sessions accommodating the conference sub-themes.
- **Contributed Posters;** the conference would provide an opportunity to the participants to present their work in a more informal atmosphere allowing interaction with other participants at desirable lengths within the time limit. The presentation will be given in parallel sessions to draw comments from participants of the same interest.
- **Panel Discussions;** these would especially be beneficial to participants in terms of drafting conference recommendations which hopefully would lead to a realistic action plans.

Abstracts and Papers submitted would be made available on the Conference Website prior to the conference so as to initiate a pre-conference discussion.

Venue

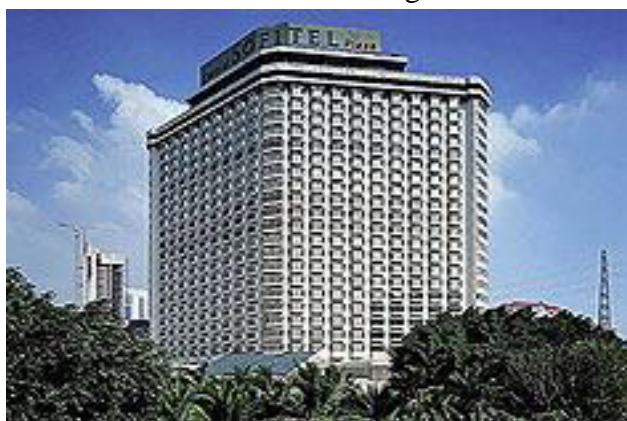
The City of Bangkok (<http://www.bangkoktourist.com>), where the conference will be held, has been named “World’s Best City 2008” by the *Travel + Leisure* magazine. It also recently won the “2007 Best City in Asia” for the seventh year in a row in the *Condé Nast* Traveler Readers’ Choice Awards.



This capital city of Thailand is beautifully located on the banks of Chao Phraya River of the Southeast Asian Peninsula. It is well connected globally by all major international airlines through its new Suvarnabhumi International Airport. Bangkok is also referred to as “Venice of the East” due to the presence of its interconnected canals and water ways within the city. The climate in Bangkok during October and January is pleasant with average day time temperature of about 30 degrees Celsius. Bangkok with a rich cultural history and special attention to tourism has a number of tourist destinations, including Grand Palace, Wat Pra Kaeo Temple and National Museum in Phra Nakhon district, Vimanmek - world largest teak mansion, Chakri Mahaprasat Throne Hall, Temple of Dawn and Wat Pho Temple along the Chao Phraya River, Chatuchak - world largest weekend market and floating market, to name a few.

Bangkok has everything to offer to different types of visitors, from its modern infrastructure and world-renowned hospitality and service, to rich culture and to-die-for cuisine. Bangkok is very well connected by road, rail and airlines with the rest of Thailand. Bangkok would be an excellent base for visiting other world famous destinations such as Pattaya beach, Phuket island - Pearl of the Andaman Sea, and Chiang Mai - the ancient city of northern Thailand among others.

The ICPE 2009 will take place at the Sofitel Centara Grand Bangkok & Bangkok Convention Centre (www.centralhotelsresorts.com/bangkok_hotels.asp) located in a new urban business and development district near the city center and attractions, conveniently situated adjoining to the expressway just 40 minutes from the International airport and 15 minutes from the center of Bangkok.



The hotel offers over 600 tastefully furnished rooms and suites with panoramic views of lush greenery from the adjacent Chatuchak Park, as well as Bangkok's spectacular skyline. This is the only self-contained complex in the "City of Angels" which comprises the Bangkok Convention Center, Central Department Store and Central Plaza Mall with over 150 specialty shops, boutiques, and multiple cinemas combined with ample parking facilities, all under one roof.

For more information on the Sofitel Centara Grand Bangkok, please link to http://www.centralhotelsresorts.com/bangkok_hotels.asp

Accommodation

Bangkok offers a very wide range of resorts, hotels, private and institutional guest houses. The recommended list of accommodation with link to on-line booking at special conference rate will be later given at the conference website.

Important Dates

First Announcement	19 January 2009
On-line Registration Open:	2 March 2009
Second Announcement	16 March 2009
Final Call for Abstract Submission:	19 June 2009
Presenters Notified:	10 July 2009
Last Date for Early Registration:	17 July 2009
Final program and schedule:	17 September 2009
Conference:	18 - 24 October 2009

Tentative Schedule

Dates	Time	Program
Sunday 18 Oct 2009	15.00 – 20.00	Arrival of Delegates Registration & Welcome Refreshments
Monday 19 Oct 2009	08.00 – 09.00	Registration
	09.00 – 10.00	Opening Ceremony and Inaugural Session
	10.00 – 10.30	Refreshments
	10.30 – 12.00	Plenary Lectures
	12.00 – 13.00	Lunch
	13.00 – 14.30	Plenary / Keynote Lectures
	14.30 – 15.00	Refreshments
	15.00 – 16.30	Plenary / Keynote Lectures
Tuesday 20 Oct 2009	08.30 – 10.00	Plenary / Keynote Lectures
	10.00 – 10.30	Refreshments
	10.30 – 12.00	Plenary / Keynote Lectures
	12.00 – 13.00	Lunch
	13.00 – 14.30	Parallel Sessions and Workshops
	14.30 – 15.00	Refreshments
	15.00 – 16.30	Poster Sessions
	18.00 – 20.30	Conference Banquet and Cultural Performance
Wednesday 21 Oct 2009	08.30 – 10.00	Parallel Sessions and Workshops
	10.00 – 10.30	Refreshments
	10.30 – 12.00	Parallel Sessions and Workshops
	12.00 – 13.00	Lunch
	13.00 – 14.30	Parallel Sessions and Workshops
	14.30 – 15.00	Refreshments
	15.00 – 16.30	Poster Sessions
Thursday 22 Oct 2009	08.30 – 16.30	Delegates Tours
Friday 23 Oct 2009	08.30 – 10.00	Parallel Sessions and Workshops
	10.00 – 10.30	Refreshments
	10.30 – 12.00	Workshops, Concluding Discussion and Closing
	12.00 – 13.00	Lunch
Saturday 24 Oct 2009	08.30 – 16.30	Departure of Delegates

Speakers

An exciting range of talks by international speakers will be presented at ICPE 2009. The organizing committee is inviting world-renown physicists up to Nobel laureate level to be Plenary Lecturers. The confirmed speakers of the conference include

- David Sokoloff, President Elected of American Association of Physics Teachers, University of Oregon, Oregon, USA
- Priscilla Laws, Dickinson College, Carlisle Pennsylvania, USA

Additional speakers from various institutions, industry, educational organizations, and funding agencies will be included. Their details and topics will be posted in the website as they become available.

Registration

ICPE 2009 is a participant-supported conference. We expect all attendees to secure funds for travel expenses and Conference fees from their own institutions. The organizers will be happy to send a special letter of invitation to a registered participant upon request, to help him/her obtaining funds from your institution. Registration will be available on line from the conference website and via fax or mail from a downloadable registration form.

Fees and Entitlements

Fees and entitlements will be posted in the website as soon as they are confirmed. However, the full registration fee rate shall not exceed the maximum of US\$450 as governed by IUPAP regulation. The registration fee for students shall be substantially lower.

The full registration entitles the participant to all days of the conference, social events, full day delegate tour, conference satchel, abstracts, preprints and/or proceedings, name badge, lunch, morning and afternoon refreshments each day.

Cancellation Policy

Cancellations must be received in writing - mail, email or fax - to the conference secretary. Cancellations will not be deemed to be received until you have written confirmation from the organizer. If you have not received acknowledgement within three business days, please contact the Conference Secretary.

Cancellations postmarked on or before 1 month prior to the conference, will incur a fee of 50% of the registration amount. No refunds will be made for cancellations for the Conference postmarked on or after 1 month prior to the conference, however substitutions may be accepted.

Paper Submission

Scientists and educators working in the field of physics education and related fields are invited to submit extended abstracts for oral or poster presentations. The abstract must be written in English. The template for online abstract submission will be available on the website. Reviewed abstracts will be selected to be either oral or poster presentation by the Technical Committee.

Publication of the Conference Proceedings would be a post-conference collation of papers corresponding to invited and contributed presentations at the conference. The proceedings will be published in the form of a printed book and also made available in the electronic form on a CD and on the web. The possibilities of publication by a leading publisher are being explored.

Authors may be requested to adjust the submitted manuscript in a proper extended/full paper format before publish.

Delegate Tours

Full registration fee entitle the participants to enjoy a full day delegate tour. Due to a large number of participants, the excursions will be arranged into few different routes to suite different travel preferences. Most excursions include a tour around the capital city. The visited places would include (but not limited to) the attractions listed below. The detail of each route will be given in the website as soon as they are confirmed. Participants will be able to enroll for preferred route during the on-line registration.

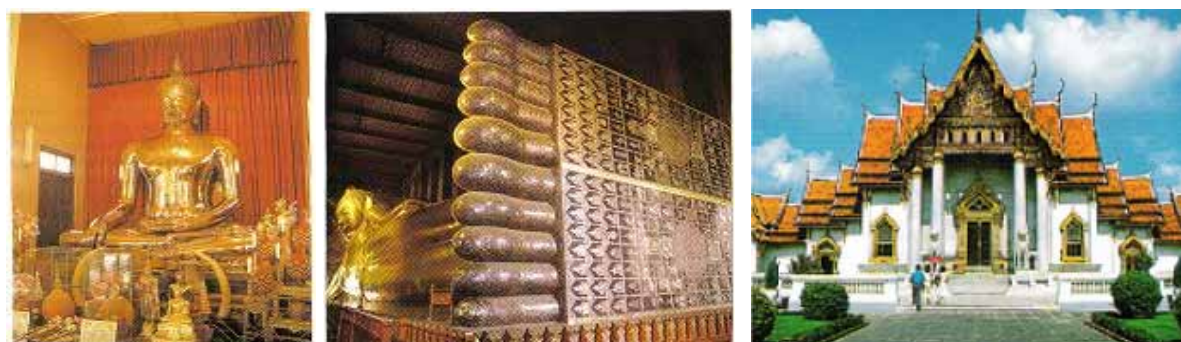
Royal Grand Palace and Emerald Buddha Temple

This city landmark should be the first place on any itinerary, which features some of the most spectacular architecture in South East Asia. The palace was constructed in 1782. It is consisting of several buildings with highly decorated architectural designs. Though no longer the royal residence, it remains the symbol of the Kingdom. Participants would visit the key attractions around the Grand Palace including Wat Phra Kaew - Temple of the Emerald Buddha, Royal Pantheon, Coronation Throne Hall, Royal Reception Hall, and Royal Funeral Hall.



Temple of the Golden Buddha, Reclining Buddha and Marble Temple

The 3 most distinguished temples in Bangkok are “Wat Trimit” the temple of the Golden Buddha – the statue of Buddha is made from solid gold weighing 5.5 tons, “Wat Pho” the temple of the Reclining Buddha – the largest and oldest in Bangkok and “ Wat Benchamabopit” the Marble Temple – representing an outstanding success of combination between Italian marble and classical Thai architecture.



Bangkok Canal Tour

A boat along the legendary Chao Phraya River and some canals on the Thon Buri side is the most pleasant way to explore the city once named “Venice of the East”. The majestic charm of the Chao Phraya adds perspectives to participants’ exploration of the city’s

premier attractions. At Floating Market, participants will see the images of people young and old paddling boats laden with fruits, vegetables and other produce. This is the only picture of a way of life in the past which is now diminishing.



Museum Treasures

National Museum of Bangkok is one of the largest and most comprehensive museums in Southeast Asia. The National Museum houses thousands of artifacts ranging from Neolithic time to present Bangkok period. The complex, also began in 1782, consists of several old but beautiful buildings of colorful Thai architectural designs. At the National Museum of the Royal Barges, participants will be able to see the Barges which were used only by the King and the Royal family when they traveled. The ceremony of Royal travel by water has been a tradition since the Ayuttaya period.



Cultural Visit

Enjoy the unique and unforgettable experience of the world-renowned Thai Village Cultural Show. Over 150 performers vividly portray a fascinating Thai culture, heritage and way of life in dances, ceremonies, rituals, sports and pastimes. The 60-minute action-packed show highlights include the following.

Thai Martial Arts: Thai-style boxing is extremely popular in Thailand. Accompanied by its unique ritual and ceremony, it is an art that demands a high degree of skill and fitness. The boxers dance around with great agility and are permitted to use - elbows, hands, feet, knees. In fact, just about any part of their supple and well-sculpted physique.

Sword fighting: A traditional and historical form of combat for both male and female warriors dated back over 600 years.

Thai Wedding Ceremony: Witness a traditional Thai wedding ceremony performed according to ancient Thai customs. It is a ceremony of pageantry, joy and splendor with all the participating friends and relatives of the newly-weds.



Elephants and Crocodiles Shows (Subject to extra charges)

Samphran Elephant Ground and Zoo offers spectacular shows of Crocodile Wrestling between man and crocodiles. It has been acclaimed to have one of the cleanest and most impressive public crocodile displays in the world. Participants also have a chance to see an elephant show complete with dramatic sounds and narration. Be entertained by demonstrations of elephants at work, playing football and dancing. See how elephants are rounded up and used during battles in ancient Thai (Siam), where elephants were once used by Siamese and Burmese armies dressed in full battle gear.



Day at the Beach (Subject to extra charges)

Take a day trip to Pattaya beach, now a world-renowned seaside resort on the eastern shore of the gulf of Thailand. Pattaya is 147 kilometers southwest of Bangkok about one and a half hour drive. It is Asia's premier beach, miles upon miles of dazzling white sand and bright blue sea. Pattaya is scuba diving training center, and there is a rich variety of marine life and coral. Major attractions include viewing coral reef from glass bottom boat, snorkeling, scuba diving, wind-surfing, para-sailing, jet-skiing, swimming, sunbathing, etc.



The participants can also enjoy combinations of the above excursions and more by choosing from a set of pre- and post-conference tours details of which to be released later.

Contact

We look forward to welcoming you in Bangkok. For any questions regarding the conference, please contact the conference secretary:

Dr. Boonchoat Paosawatyanong
Department of Physics, Faculty of Sciences
Chulalongkorn University, Bangkok 10330 THAILAND
E-mail: paosawat@sc.chula.ac.th
Fax: + 662 253-1150

For registration, call for papers, accommodation and other details please comeback and visit us again at the conference website

<http://www.icpe2009.net>