



International Conference on Physics Education

المؤتمر الدولي حول علوم التربية في الفيزياء

Programme

►► Sunday November 11, 2007

15:00-20:00 Registration & Welcome Reception - Refreshments
Centre de Conférences de la Justice
Marrakech

►► Monday November 12, 2007

08:00-09:00 Registration

09:00-10:00 Opening Ceremony

- Inaugural Address: Minister of the National Education
- Welcome Remarks: Khalid Berrada
ICPE2007 Coordinator
- Remarks: Pratibha Jolly
Chairperson, IUPAP C14-Commission
- Welcome Remarks: Zohra Ben Lakhdar
President, Tunisian Society of Optics
- Speech: Mohamed Marzak
President, Cadi Ayyad University Marrakech
- Presentation of the ICPE Medal
- Remarks: Omar Fassi Fehri
Perpetual Secretary, Academy Hassan II of Sciences
- Remarks: Anis Biro
Secretary of State in Charge of Non Formal Education
- Remarks, Abdelkader Outzourhit
Vice-President, Moroccan Society of Applied Physics
- Citation: Ian Johnston, IUPAP Commission
Seven Wonders of Physics and Technology Competition
- Presentation of "Optics & Photonics forum"
Eric Billet, Director AFOP France

10:00-10:30 Refreshments

10:30-12:30 Session 1- Chairperson: Ron Thornton, USA

10:30-11:15 Plenary Lecture
PL1: Physics for sustainable development: Promoting effective
physics education in developing countries
Priscilla W. Laws
Dickinson College, Carlisle, Pennsylvania, USA

11:15-12:00 Plenary Lecture
PL2: Attractiveness of science and the concern for
coherence
Laurence Viennot
University of Paris 7, France

12:00-12:30	Invited Talk IT1: Learning physics in real world contexts Joachim H. Schlichting University of Muenster, Germany
12:30-14:15	Lunch-Break
14:15-15:15	Session 2- Chairperson: Lahcen E. Ameziane, Morocco
14:15-14:45	Special Lecture SL1: Development and horizon of scientific research and education in Morocco Omar Fassi Fehri Perpetual Secretary, Academy Hassan II of Sciences
14:45-15:15	Special Lecture SL2: Formal and non formal education in Morocco Anis Biro Secretary of State in Charge of non Formal Education
15:15-16:15	Poster Session I PP1-PP42: Chairperson: Mauricio Pietrocola, Brazil Coffee-Break
16:15-18:15	Session 3- Chairperson: David Sokoloff, USA
16:15-17:00	Plenary Lecture PL3: A case study on curriculum reform: From undergraduate projects to indigenous PHYSWARE and pedagogic innovation Pratibha Jolly, University of Delhi, Delhi, India
17:00-17:45	Plenary Lecture PL4: Building careers in physics through networks: The role of UNESCO Minella C. Alarcon Division of Basic and Engineering Sciences, UNESCO
17:45-18:15	Invited Talk IT2: Developing teachers of physics: Developing didactics Ian Lawrence University of Birmingham, England
18:15-19:15	Exhibitors presentations: Chairperson: Eric Billet, AFOP

►► Tuesday November 13, 2007

- 09:00-10:30 Session 4- Chairperson: Minella C. Alarcon, UNESCO
- 09:00-09:45 Plenary Lecture
 PL5: Uncommon knowledge: Student behavior correlated to conceptual learning
 Ronald K. Thornton
 Center for Science and Math Teaching, Departments of Physics and Education, Tufts University, MA, USA
- 09:45-10:30 Plenary Lecture
 PL6: Active learning in lecture with interactive lecture demonstrations: Second semester topics
 David R. Sokoloff
 University of Oregon, Eugene, Oregon, USA
- 10:30-11:00 Coffee-Break

⊕ Invited Talks

11:00-13:00, Conference Hall

⊕ Parallel Technical Workshops

11:00-12:30, Rooms 1 to 4

Invited Talks

- 11:00-13:00 Session 5- Chairperson: Jolly Pratibha, India
- 11:00-11:30 Invited Talk
 IT3: Physics education at graduate level in Pakistan
 Imrana Ashraf Zahid
 Department of Physics, Quaid-i-Azam University
 Islamabad, Pakistan
- 11:30-12:00 Invited Talk
 IT4: New teaching aids for Newton mechanics based on mobile phone
 Fumiko Okiharu
 Department of Physics, Nihon University, Tokyo, Japan
- 12:00-12:30 Invited Talk
 IT5: Can interactive teaching techniques be transferred across other educational systems and cultures?
 Ian D. Johnston
 School of Physics, University of Sydney, Australia

12:30-13:00 Invited Talk
IT6: Development of demonstration apparatuses for rigid
body dynamics for first-year student class in university
Osamu Hirayama
Tokyo University of Agriculture and Technology, Japan

Parallel Technical Workshops

11:00-12:30 W4- Room 1
Linking the experiential with theoretical in teaching
electronics to novices
Maria Lycoudi and Erica Steenberg
RADMASTE Centre, University of the Witwatersrand
Johannesburg, South Africa

11:00-12:30 W8- Room 2
Procedural checklist, structured process questions and
graphic organizer as dynamic cognitive scaffolders in
physics problem-based learning
Mohd Ali Samsudin, Kamisah Osman and Lilia Halim
Faculty of Education, National University of Malaysia,
Malaysia

11:00-12:30 W9- Room 3
Micro laboratoire de sciences et technologie
Pierre Nonnon
Université de Montréal, Canada

11:00-12:30 W19- Room 4
PASCO Scientific: Innovation, technology and quality for
your science classroom. Integrating Probeware in physics
laboratories
Kurt Maksad
PASCO Scientific, USA

13:00-14:30 Lunch-Break

⊕ **Invited Talks**

14:30-16:00, Conference Hall

⊕ **Parallel Workshops**

14:30-16:00, Rooms 1 to 4

Invited Talks

- 14:30-16:00 Session 6- Chairperson: Priscilla Laws, USA
- 14:30-15:00 Invited Talk
IT26: Professional majors at the Faculty of Sciences
Semlalia
Lahcen E. Ameziane
Faculty of Sciences Semlalia, Marrakech, Morocco
- 15:00-15:30 Invited Talk
IT8: In addition to discoveries, did medieval optics
scholars also offer us elegant learning tools?
Habib Hamam
Dept. of Engineering, University of Moncton, Canada
- 15:30-16:00 Invited Talk
IT9: Physics for sustainable development: Physics as a
factor of socioeconomic development
Emmanuel B.A.K. Edee
University of Lomé, Togo

Parallel Workshops

- 14:30-16:00 W1- Room 1
Combining hands-on activities with computer
Visualizations
Dean Zollman
Kansas State University, USA
- 14:30-16:00 W2- Room 2
Interactive laboratory tutorials: Learning the art of
measurement with simple hands-on activities and desk
top experiments
Pratibha Jolly, Mallika Verma and Monika Tomar
Miranda House, University of Delhi, Delhi, India
- 14:30-16:00 W3- Room 3
Introducing photonics using a hands-on approach
Alex P. Mazzolini and Suchai Nopparatjamjornras
Swinburne University of Technology, Australia

14:30-16:00 W11- Room 4
Educational applications of lasers and holography
George Simon
California State University, CA, USA

16:00-17:00 Poster Session II
PP43-PP85: Chairperson: Dean Zollman, USA
Coffee-Break

⊕ **Invited Talks**

17:00-18:30, Conference Hall

⊕ **Parallel Workshops**

17:00-18:30, Rooms 1 to 4

Invited Talks

17:00-18:30 Session 7- Chairperson: M. Ali Misdaq, Morocco

17:00-17:30 Invited Talk
IT10: Activity based approach to solve problems in
mechanics
Aziz Fatima Hasnain
Centre for Physics Education, Karachi, Pakistan

17:30-18:00 Invited Talk
IT15: The STEPS Network supports the bologna process-
proposal for a European benchmark
Hendrik M.A. Ferdinande
STEPS by EUPEN & Universiteit Gent, Belgium

18:00-18:30 Invited Talk
IT16: Teaching optics in a multi-disciplinary curriculum:
Experience from optometry programs
Vasudevan Lakshminarayanan
University of Waterloo, Ontario, Canada

Parallel Workshops

17:00-18:30 W5- Room 1
Constructing Concept Maps in Physics Using the IHMC
Freeware
Jaafar Jantan
Universiti Teknologi MARA, Malaysia

17:00-18:30 W6- Room 2
Twenty five simple interactive lecture demonstrations on
optics activities using a laser pointer and an LED
Ivan Culaba
Ateneo de Manila University, Quezon City, Philippines

- 17:00-18:30 W7- Room 3
Simple Instructional Experiments by LADY CATS
Fumiko Okiharu¹ and Kyoko Ishii²
¹Nihon University, Kanda-Surugadai, Tokyo, Japan
²Fukui University, Bunkyo, Fukui-shi, Japan
- 17:00-18:30 W10- Room 4
Interactive Lecture Demonstrations
Ronald Thornton and David Sokoloff
Tufts University & University of Oregon, USA
- 20:00-22:00 Special Diner

►► **Wednesday November 14, 2007**

Women and Girls in Physics Session

09:00-13:30, Conference Hall

- 09:00-10:30 Session 8- Chairperson: Aziz Fatima Hasnain, Pakistan
- 09:00-09:30 Invited Talk
IT13: Social and cultural challenges for women physicists
of Pakistan
Aquila Islam
Centre for Physics Education, Karachi, Pakistan
- 09:30-10:00 Invited Talk
IT14: Boys learning, girls learning: A study about gender
differences in the framework of the EU project pencil
Marco Serpico
University of Naples-Federico II, Italy
- 10:00-10:15 Oral Presentation
OP31-F: Women in physics in South Africa
Diane J. Grayson
University of Pretoria, South Africa
- 10:15-10:30 Oral Presentation
OP36-F: Conception of entrepreneurial scientific thinking:
A panacea to the development of techno-entrepreneurs
Lilia Halim, Nor Aishah Buang, Kamisah Osman, T.
Subahan M. Meerah
Universiti Kebangsaan Malaysia, Bangi, Malaysia
- 10:30-11:00 Coffee-Break

⊕ **Oral Session "Women and Girls in Physics"**

11:00-12:30, Conference Hall

⊕ **Parallel Oral Sessions**

11:00-12:00, Rooms 1 to 2

⊕ **Parallel Workshops**

12:00-13:30, Rooms 1 to 4

Oral Session "Women and Girls in Physics"

11:00-12:30	Session 9- Chairperson: Ann-Marie Pendrill, Sweden
11:00-11:15	Oral Presentation OP57-F: Moroccan women in Physics Fatiha Maaroufi Faculté des Sciences, Université Mohamed 1 ^{er} , Morocco
11:15-11:30	Oral Presentation OP85-F: Increasing the number of women in physics Azita Seiedfadaei and Aliasghar Daraeihajitoei Tehran Educational Organization University, Iran
11:30-11:45	Oral Presentation OP59-F: Integrating prominent women physicists in the curriculum: Effects on motivation to study physics and career interests Rohaty Mohd Majzub Universiti Kebangsaan Malaysia
11:45-12:00	Oral Presentation OP82-F: Why would a girl become a physicist? Katemari Rosa and Elisabeth Santos State University of Feira de Santana, Brazil
12:00-12:15	Oral Presentation OP35-F: Club LISE in Bosnia and Herzegovina as a part of the FP6 EC project PROMISE: Some project ideas for female students in physics Lamija Tanovic and Zalkida Hadzibegovic University of Sarajevo, Bosnia & Herzegovina
12:15-12:30	Oral Presentation OP26-F: Promoting physics amongst female learners in the Western Cape through active engagement Gillian J. Arendse University of Stellenbosch, South Africa

Parallel Oral Sessions

- 11:00-12:00 Sessions 10 & 11: Parallel Oral Sessions
 E- Bridging the Gaps, Room 1
 Chairperson: Martins Maria Inês, Brazil
 B- Effective Teaching Strategies, Room 2
 Chairperson: Mabrouk Benhamou, Morocco

Parallel Workshops

- 12:00-13:30 W13- Room 1
 Exploring new possibilities: Fostering innovation with simple hands-on physics projects
 Lister Fleury de Oliveira Laranjo¹ and Eduardo de Campos Valadares²
¹Escola Estadual Professor Morais, Brazil; ²Depto. de Física, Universidade Federal de Minas Gerais, Brazil
- 12:00-13:30 W17- Room 2
 Building a lock-in amplifier using low-cost components and a data acquisition board
 Rodolphe Heyd
 Ecole Normale Supérieure, Marrakech, Morocco
- 12:00-13:30 W18- Room 3
 Women in science and development
 Mina Bettachy
 Association Women in Science in Morocco
- 12:00-13:30 W20- Room 4
 Resource for the teaching-learning of light at secondary level
 Siti Hendon Sheikh Abdullah¹, Khalijah Mohd Salleh¹, Lilia Halim²
¹School of Applied Physics, Universiti Kebangsaan; ²Faculty of Education, Universiti Kebangsaan, Malaysia
- 13:30-15:00 Lunch-Break

*Wednesday November 14, 2007 15:00 - 19:00
 Conference Cultural Programme*



►► Thursday November 15, 2007

- 08:30-10:30 Session 12- Chairperson: Laurence Viennot, France
- 08:30-09:15 Plenary Lecture
 PL7: By writing, to communicate the reasoning of scientific research in a didactic editorial work intended for students of a “formation professionnalisante”
 Alain Jeannel and Gerard Couturier
 University of Bordeaux I, France
- 09:15-09:45 Invited Talk
 IT7: Research and development to create learning materials for physics in the context of medical applications
 Dean Zollman
 Kansas State University, USA
- 09:45-10:15 Invited Talk
 IT11: The role of the Asian physics education network (ASPEN) in promoting active learning methods in Asia
 Alex P. Mazzolini
 Swinburne Univ. of Technology, Melbourne, Australia
- 10:15-10:30 Coffee-Break

⊕ Invited Talks

10:30-12:30, Conference Hall

⊕ Parallel Oral Sessions

10:30-12:30, Rooms 1 to 4

Invited Talks

- 10:30-12:30 Session 13- Chairperson: Ian Lawrence, UK
- 10:30-11:00 Invited Talk
 IT12: Students’ learning preferences and the need for concept mapping
 Jaafar Jantan
 University of Technology MARA, Malaysia
- 11:00-11:30 Invited Talk
 IT17: Hurdles in the way of promoting activity-based learning in context to teachers and teaching conditions in Pakistan
 Asima Ali
 Centre for Physics Education, Karachi, Pakistan

- 11:30-12:00 Invited Talk
IT19: An interdisciplinary view of the teaching of physics
Erika Zimmermann
University of Brasília, Brazil
- 12:00-12:30 Invited Talk
IT24: Modern physics in secondary school: Why teach? What are the obstacles? Some responses from Brazilian experience
Mauricio Pietrocola
Faculty of Education, University of São Paulo, Brazil

Parallel Oral Sessions

- 10:30-12:30 Sessions 14 to 17: Parallel Oral Sessions
- A- New Job Opportunities, Room 1
Chairperson: Kamisah Osman, Malaysia
- B- Effective Teaching Strategies, Room 2
Chairperson: Souad Lahmar, Tunisia
- C- Learning with Technology, Room 3
Chairperson: Sassi Elena, Italy
- D- Physics for Sustainable Development, Room 4
Chairperson: Emmanuel B.K.A Edee, Togo
- 12:30-14:00 Lunch-break

⊕ **Invited Talks**
14:00-16:00, Conference Hall

⊕ **Parallel Oral Sessions**
14:00-16:00, Rooms 1 to 4

Invited Talks

- 14:00-16:00 Session 18- Chairperson: Ian Johnston, Australia
- 14:00-14:30 Invited Talk
IT18: Misconceptions about color light and vision: Student's hypotheses and teacher questions in public schools of the State of São Paulo
Alexandre Campos
Secretary of Education, State of São Paulo, Brazil

- 14:30-15:00 Invited Talk
IT20: Scientific research and teaching in the nuclear physics and techniques branches in Morocco during the last 50 years
Moulay Ali Misdaq
Faculty of Sciences Semlalia, University Cadi Ayyad, Marrakech, Morocco
- 15:00-15:30 Invited Talk
IT21: Research and development of problem solving skills in physics education in Malaysia
T. Subahan Mohd Meerah
Univerisiti Kebangsaan, Malaysia
- 15:30-16:00 Invited Talk
IT22: L'ExAO, un outil pour l'intégration des matières
Pierre Nonnon
Laboratoire de Robotique Pédagogique, Département de Didactique, Université de Montréal, Canada

Parallel Oral Sessions

- 14:00-16:00 Sessions 19 to 22: Parallel Oral Sessions
- E- Bridging the Gaps, Room 1
Chairperson: Dian Grayson, South Africa
- B- Effective Teaching Strategies, Room 2
Chairperson: Telmini Mourad, Tunisia
- C- Learning with Technology, Room 3
Chairperson: Serpico Marco, Italy
- D- Physics for Sustainable Development, Room 4
Chairperson: Joel Maquilling, Philippines
- 16:00-16:30 Coffee-break

⌚ **Parallel Oral Sessions** 16:30-18:30, Rooms 1 to 4

- 16:30-18:30 Sessions 23 to 26: Parallel Oral Sessions
- E- Bridging the Gaps, Room 1
Chairperson: Paul Paradis, Canada
- B- Effective Teaching Strategies, Room 2
Chairperson: Culaba Ivan, Philippines

B- Effective Teaching Strategies, Room 3

Chairperson: Arshed Tahira, Pakistan

C- Learning with Technology, Room 4

Chairperson: George Simon, USA

20:00 → Conference Banquet

Borj Bladi

Moroccan Folklore: Diner & Show

►► **Friday November 16, 2007**

⊕ **Plenary Lectures**

09:00-11:00, Conference Hall

⊕ **Caravan of Sciences**

09:00-11:00, Faculty of Sciences Semlalia

Plenary Lectures

09:00-11:00 Session 27: Chairperson: Laurence Viennot, France

09:00-09:30 Invited Talk
IT25: Lecture on the fundamental works of Professor
Pierre-Gilles de Gennes
Mabrouk Benhamou
Faculty of Sciences Ben M'Sik, Hassan II University,
Casablanca, Morocco

09:30-10:15 Plenary Lecture
PL8: Science alone cannot lead to development.
Development without Science cannot exist
Zohra Ben Lakhdar
Faculté des Sciences de Tunis - Société Tunisienne
d'Optique, Tunisia

10:15-11:00 Plenary Lecture
PL9: Developing physics for sustainability: Need for
curriculum revision
Khalijah Mohd Salleh
Universiti Kebangsaan, Malaysia

Caravan of Sciences

09:00-11:00 W14: Caravan of Sciences: Brazilian experience
M. Dahmouche, A.C. Arantes, D. Espósito, V. Cason, V.
F. Guimães and P. C. B. Arantes
Fundação Centro de Ciências e Educação Superior a
Distância do Estado do Rio de Janeiro, Rio de Janeiro,
Brazil

- 09:00-11:00 W15: Caravan of Sciences: Moroccan experience
Mohamed Semlali, Abdelaziz Alaoui and Elmostapha Lotfi
Foundation Sigma for Education & Science, Morocco
- 11:00-11:30 Coffee-Break
- 11:30-12:15 Closing Ceremony
- Keynotes Speech
 - ICPE Announcements
 - Farewell Speech
 - Highlights of the conference – IUPAP
 - Concluding Discussions

Parallel Oral Sessions

Sessions 10 & 11- Wednesday November 14, 2007

11:00-12:00, Rooms 1 to 2

- 11:00-12:00 Session 10: E- Bridging the Gaps, Room 1**
Chairperson: Maria Inês Martins, Brazil
- OP86-E Public understanding of science: Lessons learnt in the framework of the EU project PENCIL
Emilio Balzano, Francesco Cuomo and Marco Serpico
University of Naples-Federico II, Italy
- OP101-E Focusing on first year undergraduate physics labs for constructing knowledge and understanding science
Thomas Wemyss¹, David Smith² and Paul van Kampen³
Dublin City University Glasnevin, Dublin, Ireland
- OP103-E Enhancing public understanding of science: Learning physics in interactive environments
Erika Zimmermann¹ and Franco de Salles Porto²
¹Universidade de Brasília- Faculty of Education; ²Physics Institute, Universidade de Brasília, Brazil
- OP99-E Improving prospective teachers knowledge about models and modeling: Design and experimentation of a teacher training intervention
Luciana Danusso¹, Italo Testa² and Matilde Vicentini¹
¹University “La Sapienza”, Rome; ²University “Federico II”, Naples, Italy
- 11:00-12:00 Session 11: B- Effective Teaching Strategies, Room 2**
Chairperson: Mabrouk Benhamou, Morocco
- OP68-B Material science project: Studying new materials to support basic physics education
Gabriella Monroy, Elena Sassi, Sara Lombardi and Italo Testa
Federico II University of Naples, Italy
- OP54-B Map meetings- The optimal tutorial environment
Christine Lindstrøm and Manjula Devi Sharma
University of Sydney, School of Physics, Australia
- OP11-B Difficulties in understanding physics in the learning process: A bottom-top approach
Arezki Benfdila
University M. Mammeri Tizi-Ouzou, Algeria
- OP72-B Physics of sports in a program of science diffusion in Pernambuco state, Brazil
Fernando Nóbrega Santos and Hélio T. Coelho
Federal University of Pernambuco, Brazil

Parallel Oral Sessions

Sessions 14 to 17 - Thursday November 15, 2007

10:30-12:30, Rooms 1 to 4

- 10:30-12:30 Session 14: A- New Job Opportunities, Room 1**
Chairperson: Kamisah Osman, Malaysia
- OP62-A Laser applications and related job opportunities
Ismail Mekkaoui Alaoui
Cadi Ayyad University, Faculty of Sciences Semlalia, Marrakech, Morocco
- OP50-A How many Korean secondary and college students find the same scientific problem as Kepler found in optics and physiology?
Youngmin Kim
Pusan National University, Korea
- OP48-A Some innovating teaching programs in physics
Adi Kassiba and R El Guerjouma
Université du Maine, Le Mans, France
- OP9-A Course of an applied license in optics and optometry: An experience to evaluate
M. Azizan, E. Ech-chamikh, F. Debbagh, I. Aboudihab, A. Outzourhit Y. Ijdiyaou and A. Essafti
Cadi Ayyad University, Faculty of Sciences Semlalia, Marrakech, Morocco
- OP83-A An astronomy course for high-school students
Aline Mota¹, Iracema Bonomini¹ and Ricardo Rosado²
¹Universidade Federal de Itajubá, Brazil; ²Universidade de São Paulo, Brazil
- OP76-A Investigation of affective strategies used by physics teachers in high schools
Almer (Abak) Gungor¹ and Ali Eryilmaz²
¹Ankara University, Faculty of Education; ²Middle East Technical University, Ankara, Turkey
- OP15-A OP15-A Information and communication technologies and physics education
Naseem A. Bhatti
Computer Training Centre, Islamabad, Pakistan
- OP102-A Using conceptual writing to explore students' prior knowledge in quantum
Sura Wuttiprom¹, Ratchapak Chitaree² and Chernchok Soankwan²
¹Institute for Innovation and Development of Learning Process; ²Department of Physics, Mahidol University, Bangkok, Thailand

10:30-12:30 Session 15: B- Effective Teaching Strategies, Room 2

Chairperson: Souad Lahmar, Tunisia

- OP75-B Acceleration for the whole body- An underutilized resource for physics education
Ann-Marie Pendrill
Department of Physics, Göteborg University, Sweden
- OP12-B A capstone course for the physics curriculum at UAE University
Maamar Benkraouda and Usama Al Khawaja
Department of Physics, UAE University, UAE
- OP29-B A teaching strategy for secondary students on waves using a guitar
Marcelo Fernandes
Universidade Tecnológica Federal do Paraná, Brazil
- OP55-B Overview of the RADMASTE Microscience system and latest developments
Maria Lycoudi
RADMASTE Centre, University of the Witwatersrand
Johannesburg, South Africa
- OP14-B New approach in learning physics: Optics and photonics as a model for developing basic concepts
Khalid Berrada¹, Rafik Channa¹, Abdelkader Outzourhit¹
Zohra Ben Lakhdar², Rym Miled² and Souad Lahmar²
¹Cadi Ayyad University, Marrakech, Morocco; ²University of Tunis, Tunisia
- OP98-B Innovative activities and indigenous PHYSWARE for undergraduate optics laboratory
Mallika Verma, Vandana Verma, Monika Tomar, Pratibha Jolly
Miranda House, University of Delhi, India
- OP60-B The active learning pedagogy: Conducting local Active Learning workshops in the Philippines
Maquiling, Joel T.
Department of Physics, School of Science and Engineering, Ateneo de Manila University, Philippines
- OP96-B Improvement of physics lessons through students' hands-on approach in the general studies
Toyomi Tamaki^{1,3} and Toshiharu Takizawa²
¹Institute of General Studies, Gunma University; ²Honorary Professor of Gunma University, Japan; ³Mathematical Assist Design Laboratory Inc., Japan

10:30-12:30 Session 16: C- Learning with Technology, Room 3

Chairperson: Elena Sassi, Italy

- OP61-C The incorporation of Web available resources to produce videos about learning physics
Maria Inês Martins
Pontifícia Universidade Católica de Minas Gerais, Brazil
- OP65-C Real-time motion-analyzing tool on web using adobe flash with low cost
Minoru SATO
School of Science, Tokai University, Japan
- OP66-C Computer aided teaching for first year students of Egyptian universities
Hesham Mohamed Mansour
Physics Department, Faculty of Sciences, Cairo University, Egypt
- OP78-C Discussing simulations: What learning can be achieved?
Roser Pintó
Universitat Autònoma de Barcelona, Spain
- OP6-C Web-based virtual physics laboratory
M. Arunraj¹, N. Karthikeyan¹, H. Kumar², S. Devashankar³
¹Department of Information Technology, Surapet, Chennai, India; ²Department of Physics, Himachal Pradesh, India; ³Department of Physics, Chennai, India
- OP34-C Role of distance learning courses in science education for girls
Anu Gupta
Seth Jai Parkash Mukand Lal Institute of Engineering & Technology, Radaur, Yamunanagar, India
- OP80-C New approach in Egyptian faculties using E-learning
Asmaa El Hassan and Reham Rezk
National Institute of Laser Enhanced Sciences, Cairo, Egypt
- OP52-C Impact of EDUSAT on the physics education in schools: A case study
Vikas Kumar
Asia Pacific Institute of Management, New Delhi, India

10:30-12:30 Session 17: D- Physics for Sustainable Development, Room 4

Chairperson: Emmanuel B.K.A. Edee, Togo

- OP22-D Formation and analysis of pupil's environmental attitudes in physics education
Ján Degro
Institut of Physics, Faculty of Science, P.J. Šafárik University in Košice, Slovakia

- OP100-D Student understanding of angular momentum in classical mechanics
Pornrat Wattanakasiwich and Wachiraporn Choopan
Chiang Mai University, Chiang Mai, Thailand
- OP73-D What are the students' mathematical and conceptual difficulties in potential well problems in quantum mechanics?
Ozgur Ozcan¹ and Nilufer Didis²
¹Hacettepe University, Ankara; ²Middle East Technical University, Ankara, Turkey
- OP56-D Establishing the first master's program in medical physics in Saudi Arabia and the Gulf region
Nabil Maalej and Anan Al-Karmi
King Fahd University of Petroleum and Minerals, Saudi Arabia
- OP44-D The emergence of task-specific identities in developing explanations about charge: A Maldivian perspective
Khadeeja Ibrahim-Didi
Maldives College of Higher Education, Maldives
- OP53-D An investigation of students' understanding in optics
Lakhan Lal Yadav¹ and Frederick Rutimirwa²
¹Kigali Institute of Education, Kigali, Rwanda; ²Secondary School of Mutendeli, Ngoma, Rwanda
- OP81-D Difficulties in physics problem solving: A Brazilian poor school scenario
Mario Costa^{1,2}, Carlos Almeida², Julio Ribeiro², Maria-José Barros² and Paulo Freire²
¹Liceu do Conjunto Ceará, Brazil; ²Universidade Federal do Ceará, Brazil
- OP30-D Automated systems for accurate measurement of acceleration due to gravity
Amit Garg, Reena Sharma and Vishal Dhingra
University of Delhi, Govindpuri, Kalkaji, New Delhi, India

Parallel Oral Sessions

Sessions 19 to 22 - Thursday November 15, 2007

14:00-16:00, Rooms 1 to 4

- 14:00-16:00** **Session 19: E- Bridging the Gaps, Room 1**
Chairperson: Dian Grayson, South Africa
- OP42-E Learning physics in a civil society: The role of teaching and learning about the nature of science
Dietmar Höttecke
Institute for Science Education, University of Bremen, Germany

- OP10-E The physics' curriculum research choices and results
E. Balzano, M. Gagliardi, E. Giordano, P. Guidoni, O. Levrini, G. Mendella, C. Minichini and C. Tarsitani
Departments of Physics, Italian Universities, Italy
- OP91-E Some influences of physics textbooks on students' views about the nature of science
Cassiano de Rezende Pagliarini and Cibelle Celestino Silva
Institute of Physics of São Carlos, University of São Paulo, Brazil
- OP77-E A project for the updating of the physics curriculum in the secondary school
G. Brockington, I. Gurgel, M. Siqueira, T. Forato, M.C. Azevedo and M. Pietrocola
Faculdade de Educação, Universidade de São Paulo, Brazil
- OP45-E The new classification for Pluto: Differences between teachers and science divulgators
Hugo Alberto Jasso Villarreal^{1,2}, María Teresa Gallegos Cepeda^{1,3} and Adriana Zavala Álvarez¹
¹Taller Infantil de Física Espacial; ²Escuela Secundaria Técnica; ³Instituto Potosino de Investigación Científica y Tecnológica, San Luis Potosí, México
- OP95-E Epistemological beliefs and conceptual understanding of force and motion in an active-learning classroom and with self-reflections
Teresita Dinal-Taganahan
Central Mindanao University, Musuan Bukidnon, Philippines
- OP3-E The new struggle
Gillian Arendse and Delia Marshall
Department of Physics, University of Stellenbosch, South Africa
- OP89-E Teachers' perceptions of science and their influence on teaching physics
Ana Silva¹ and Cidoval Sousa²
¹Department of Physics, State University of Paraiba, Brazil
²Department of Social Communication, State University of Paraiba, Brazil
- 14:00-16:00 Session 20: B- Effective Teaching Strategies, Room 2**
Chairperson: Mourad Telmini, Tunisia
- OP58-B The effect of using toys in teaching physics among preschoolers
Rohaty Mohd Majzub
Universiti Kebangsaan, Malaysia

- OP1-B Physics education and research at North Carolina A&T State University
Abdellah Ahmidouch
North Carolina A&T State University, USA
- OP79-B Project laboratory for first year students- strategies for planning successful projects
Gorazd Planinšič
University of Ljubljana, Slovenia
- OP67-B Different approaches to constructivism through learning history of physics ideas
Khalijah Mohd Salleh¹ and Nor Sakinah Mohamad²
¹Faculty of Science and Technology, Universiti Kebangsaan,
²Faculty of Education, Universiti Kebangsaan, Malaysia
- OP24-B Preservice physics teachers' attributions about succeeding quantum mechanics
Nilufer Didis¹ and Ozgur Ozcan²
¹Middle East Technical University, Ankara, Turkey; ²Hacettepe University, 06800, Ankara, Turkey
- OP39-B Analysis of students' representations of sound when using simulations
María Isabel Hernández and Roser Pintó
CRECIM, Universitat Autònoma de Barcelona, Spain
- OP64-B The "ISS" national plan. Action research activities and strategies for professional development for teachers of science
E. Balzano, C. Minichini, M. Domenica De Vizia and P. Guidoni
Università degli Studi di Napoli Federico II, Italy
- OP104-B Problem solving technique: Revisited
Khalil Ali Ziq, Department of Physics
King Fahd University of Petroleum and Minerals' Dhahran 3126, Saudi Arabia
- 14:00-16:00 Session 21: C- Learning with Technology, Room 3**
Chairperson: Serpico Marco, Italy
- OP2-C Use of computer-based data acquisition systems to teach physical sciences in laboratories
Djilali Amrani and Paul Paradis
Service des Enseignements Généraux École de Technologie Supérieure, Montréal (QC) H3C 1K3, Canada
- OP47-C Impacts of computer simulation on students' achievement, group behavior and attitude in direct current circuits
Tsegaye Kassa
Department of Physics, Bahir Dar University, Bahir Dar, Ethiopia

- OP21-C A new project on distance education in Rio de Janeiro- Brazil
Monica S. Damouche¹, Lizardo H.C. M. Nunes¹, Isaías G. de Oliveira¹, Leandro Salazar de Paula² and Fabricio Toscano¹
¹Fundação Centro de Ciências e Educação Superior a Distância do Estado de Rio de Janeiro, RJ, Brazil; ²Instituto de Física, Universidade Federal do Rio de Janeiro, RJ, Brazil
- OP38-C Development of self learning material for B.Sc. students
Aziz Fatima Hasnain¹, Kaneez Raza Abedi² and Saadia Naz³
¹Institution1 Centre for physics Education, Karachi; ²Institution 2 Physics Department APWA Govt. College Women, Karachi; ³Institution 3 St Joseph's College for Women, Karachi, Pakistan
- OP74-C Text2teach: Enhancing physics teaching and learning
Marmon A. Pagunsan¹ and Shella D. Delgado-Confesor²
¹Engineering Department, Nizwa College of Technology, Nizwa, Sultanate of Oman; ²College of Arts and Sciences, Central Philippine University, Iloilo City, Philippines
- OP94-C Learning physics via model construction: Role of the ICT environments
R.M. Sperandeo-Mineo and C. Fazio
Dipartimento di Fisica e Tecnologie Relative- Università di Palermo, Italy
- OP28-C Computers in physics education
Ashutosh Dubey¹, Cyril V Paul¹, K.V. Kandasamy¹ and Srinivasan Devashankar²
¹Department of Electronics and Instrumentation, Velammal Engineering College, Surapet Chennai Tamil Nadu, India; ²Department of physics, Velammal Engineering College, India
- OP46-C Computer simulated physics experiments
Kamalakaran Karthik
Department of Information Technology, Panimalar Engineering College, Chennai, Tamil Nadu-602103, India
- 14:00-16:00 Session 22: D- Physics for Sustainable Development, Room 4**
Chairperson: Joel Maquilling, Philippines
- OP93-D GULUNAP: A project for teacher education between north Uganda and Italy
Elena Sassi and Luigi A. Smaldone
University "Federico II", Naples, Italy
- OP70-D Use of a recycled neutron source for teaching some experimental nuclear techniques in a developing country
Héctor A. Múnera
Department of Physics, Universidad Nacional, Bogotá, Colombia

- OP49-D Indigenous science: Oral tradition and formal knowledge
Killner Gustavo Isaac
Magistério Intercultural Superior Indigena, Brazil
- OP16-D Thailand science school standards: A perspective on physics education
Boonchoat Paosawatyanong
Faculty of Science, Chulalongkorn University Bangkok, Thailand
- OP4-D Development of interdisciplinary activities for Brazilian students involving the sun and it's spectrum in an informal space
Silvia Aroca¹, Dietrich Schiel² and Cibelle Silva¹
¹Instituto de Física de São Carlos, Universidade de São Paulo;
²CDCC, Universidade de São Paulo, Brazil
- OP92-D Teachers' and students' perception to the teaching and learning of physics
Siti Hendon S. Abdullah¹, Khalijah Mohd Salleh² and Lilia Halim³
^{1,2}School of Applied Physics, Universiti Kebangsaan, Malaysia;
³Faculty of Education, Universiti Kebangsaan, Malaysia

Parallel Oral Sessions

Sessions 23 to 26- Thursday November 15, 2007

16:30-18:30, Rooms 1 to 4

- 16:30-18:30 Session 23: E- Bridging the Gaps, Room 1**
Chairperson: Paul Paradis, Canada
- OP23-E Experiments with mobile phones – A way to increase public understanding of physics
Roman Dengler
University of Education, Karlsruhe, Germany
- OP20-E The REVIR project: An approach to bridge the school-university gap in science
Digna Couso, Roser Pintó and Marcella Sáez
CRECIM, Universitat Autònoma de Barcelona, Spain
- OP40-E An interdisciplinary project about the use of nuclear energy
George Hirata, Anita Steinbruch, Luciano Nakagawa and Márcio Moreira
I.L. Peretz High School, Brazil
- OP90-E Corpuscular optics in the eighteenth century: An historical example of the nature of science
Breno Arsioli Moura¹ and Cibelle Celestino Silva²
¹Department of Physics, University of São Paulo; ²Institute of Physics of São Carlos, University of São Paulo, Brazil
- OP63-E Physics everywhere
Bertha Michel and Miguel García
Museo de Ciencias, Universidad Autónoma de Zacatecas, Mexico

- OP8-E Identification of the teacher views about difficulty levels of magnetism concepts
Ali Azar¹ and Nilufer Didis²
¹Zonguldak Karaelmas University, 67300, Zonguldak, Turkey
²Middle East Technical University, 06531, Ankara, Turkey
- OP97-E Transforming public schools into innovation centers
Eduardo de Campos Valadares¹, G. F. Rodrigues Luiz²,
L. Oliveira Laranjo³, M.S. Leite¹, S. H. Cicco Sandes², V. V.
Dalla Bernardina¹, W. Ruas Silva² and W.R. de Cristo Paiva¹
¹Depto. de Física - ICEx - Universidade Federal de Minas Gerais,
Brazil; ²Instituto de Ciência Biológicas; ³Escola Estadual
Professor Moraes, Belo Horizonte, Brazil
- 16:30-18:30 Session 24: B- Effective Teaching Strategies, Room 2**
Chairperson: Culaba Ivan, Philippines
- OP41-B Research of new forms of competitions in fostering the creativity of youth
Renata Holubova
Palacky University, Faculty of Science, Czech Republic
- OP88-B Japanese physicist Makita Goto and simple experiments
Jun Shozawa¹, Hiroshi Takahashi¹, Akira Akabane², Toyomi Tamaki³ and Toshiharu Takizawa¹
¹Gunma University; ²Saitama Medical University;
³Mathematical Assist Design Laboratory, Japan
- OP18-B Student reasoning on the temperature dependence of the buoyant force: Pre- and post experiments
Nageswar Rao Chekuri
Woodbury University, 7500 Glenoaks Blvd, Burbank, CA, USA
- OP32-B Research on long-term resonance in understanding and motivation of students
E. Balzano¹, M. Gagliardi², E. Giordano³ and P. Guidoni¹
¹University of Napoli 1; ²University of Bologna 2; ³University of Milano-Bicocca, Italy
- OP25-B Investigation of pre-service physics teacher's motivation towards learning quantum mechanics
Nilufer Didis and Ali Eryilmaz
Middle East Technical University, 06531, Ankara, Turkey
- OP5-B Preparing physics graduates for activity-based teaching at pre-university level in Pakistan
Tahira Arshed¹, Aziz Fatima Hasnain² and Asima Ali²
¹Federal Urdu University, Karachi; ²Center for Physics Education, Karachi, Pakistan

- OP13-B A simple machines approach to acquiring and developing knowledge to teach mechanical systems in middle schools
HsingChi von Bergmann
Faculty of Education, University of Calgary, Alberta, Canada
- OP84-B Linking classroom practice of physics by inquiry to the motivation of physics students at secondary level
Sarojiny Saddul-Hauzaree
Mauritius Institute of Education, Mauritius
- 16:30-18:30 Session 25: B- Effective Teaching Strategies, Room 3**
Chairperson: Alain Jeannel, France
- OP71-B Limitations of point- and line-representations of extended bodies in elementary rotational mechanics
Héctor A. Múnera
Department of Physics, Universidad Nacional Bogotá, Colombia
- OP17-B Teaching in the faculty of sciences: What should we do to improve students' interest?
Ikram Cheikhrouhou
Faculty of Sciences of Bizerte, Tunisia
- OP27-B The introduction of the 4MAT system of learning styles in teaching physics
Mario Humberto Ramírez Díaz
CICAT, Avanzada, Instituto Politécnico Nacional, México
- OP43-B A contribution to overcome frequently misconceived concepts in college physics
Ahmed Houari and Abdelhakim Benosman
Faculty of sciences, University of Tlemcen, Algérie
- OP37-B Examination and textbook relationship in the subject of physics at secondary school level
Muhammad Aamir Hashmi¹ and Amna Kiran²
¹University of Minnesota, MN, USA; ²Hemline University, USA
- OP33-B Learner motivation and experiences at science Expos
Dale Gundry
University of the Witwatersrand, South Africa
- OP87-B Exploring two ways of using slices of video to teach superconductivity
Manjula D. Sharma, Ashleigh Mayo and Derek Muller
University of Sydney, Australia

16:30-17:30 Session 26: C- Learning with Technology, Room 4

Chairperson: George Simon, USA

- OP19-C A successful program of science diffusion in the state of Pernambuco, Brazil
Hélio T. Coelho, Fernando Nóbrega Santos and Alex Sandro Gomes
Federal University of Pernambuco, Pernambuco, Brazil
- OP7-C The step-index optical fiber
El Mahdi Assaid¹, El Mustapha Feddi² and M'hamed Elaydi³
¹Faculté des Sciences, El Jadida; ²ENS Technique, Mohammedia; ³CPR, El Jadida, Morocco
- OP51-C Development of IT-based educational resources to overcome students' misconceptions in physics laws
Akizo Kobayashi
Niigata University, Niigata, Japan
- OP69-C LAPEN as sponsor of training physics teachers
Cesar Eduardo Mora Ley
Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional, Mexico

Poster Presentations

- PP1-E** A professional major in telecommunications and networks
Abdellah Ait Ouahman¹, Brahim Ait Es said¹ and Ahmed Ouladsaid²
¹Faculty of Sciences Semlalia, Marrakech, Morocco; ²Ecole Royale de l'Air
Marrakech, Morocco
- PP2-B** The abstract thinking in elementary electromagnetic courses
Juan Carlos Alvarado Alcócer, Paulo Cezar Barbosa, Maria Daniela
Santabaia Cavalcanti, Joao Batista Furlan Duarte and Daniel Costa Araújo
Centro de Ciências Tecnológicas da Universidade de Fortaleza, Brazil
- PP3-B** Vision of science and physics: A survey of astronomy conceptions of
secondary school physics teachers in Nazimabad Karachi region, Pakistan
Jehan Ara Meyo¹, Syed Imtiaz Hussain Naqvi² and M. Imran³
¹Govt. Adamjee Science College, Karachi; ²Govt. Pilot Secondary School,
Lahore, Pakistan; ³Nasra Secondary School, Karachi, Pakistan
- PP4-A** Physics education within the framework of the new reform: The case of the
faculty of sciences, El Jadida, Morocco
Abdezzahid Arbaoui
Physics Department, Faculty of Sciences, El Jadida, Morocco
- PP5-B** Modern physics at high schools nontraditionally and motivationally:
Interactive approach only with elementary algebra
Jozef Hanc
Institute of Physics, P.J. Safarik University in Kosice, Slovakia
- PP6-E** Bridging the gap between various levels of education on the model of
operation physics used in the USA
Tahira Arshed
Federal Urdu University of Arts, Science and Technology, Karachi, Pakistan
- PP7-C** The multi-mode graded-index optical fiber
El Mahdi Assaid¹, El Mustapha Feddi² and M'hamed Elaydi³
¹Faculté des Sciences, El Jadida; ²ENS Technique, Mohammedia; ³CPR, El
Jadida, Morocco
- PP8-D** Molecular line parameters for spatial remote sensing purpose
Mohammed Badaoui
Agronomic and Veterinary Institute, Physics Unit, Madinat Al-Irfane, Rabat-
les Instituts, Morocco
- PP9-D** Some causes for underperformance in physics examination
Adilson C. Barros
Universidade Bandeirante de São Paulo, Brazil
- PP10-C** Models of interaction learner-CAL under PAKMA and Vis-Edit with the
examples from mechanics and thermodynamics
Bekhechi Tewfik¹, Bendimered M. Karim² and Guermoudi Amine²
¹Université of Tlemcen, Tlemcen; ²Centre Universitaire de Béchar, Algeria

- PP11-D** Linking universities with industry: A key issue for sustainable development
Arezki Benfdila
LMPDS, University, Tizi-Ouzou, Algeria
- PP12-E** High school in university laboratories
Thiago Costa Caetano
Escola Estadual Nossa Senhora de Lourdes, Brazil
- PP13-B** Modern physics teaching focusing on STS (Science, Technology and Society): A methodological proposal for high school level using the X-Ray topics
Fabio Ferreira de Oliveira
FAETEC-ETESC – Colegio pH. LTDA, Brazil
- PP14-B** Learning physics with the Spider-man: Using extracts of the movie to discuss subjects of physics in high-school
Luciano D. Oliveira
Colégio Monteiro Lobato, Brazil
- PP15-B** Using the history of physics to motivate students in fluid mechanics learning
Luciano D. Oliveira¹ and Paulo M. Mors²
¹Colégio Monteiro Lobato; ²Instituto de Física, Universidade Federal do Rio Grande do Sul, Brazil
- PP16-B** Teaching of digital electronics in undergraduate physics class
Monika Tomar, Mallika Verma and Pratibha Jolly
Miranda House, University of Delhi, Delhi 110 007, India
- PP17-B** 11th grade high school students' attitude towards physics laboratories
Nilufer Didis
Middle East Technical University, 06531, Ankara, Turkey
- PP18-D** Students' understanding and interpretation of mathematical models in quantum mechanics
Nilufer Didis and Ali Eryilmaz
Middle East Technical University, 06531, Ankara, Turkey
- PP19-F** Arab women in physics
Reham Rezk and Asmaa El Hassan
National Institute of Laser Enhanced Sciences (NILES), Cairo, Egypt
- PP20-B** The launching of projectiles and the sports
Ferro Motta Antonio
Escola crescimento, São Luis – Maranhão, Brazil
- PP21-A** Nature of science in physics teaching: A study about luminiferous ether on XIX Century
Thaís C. M. Forato¹, Maurício Pietrocola¹ and Roberto de A. Martins²
¹Faculdade de Educação, University de Sao Paulo; ²Instituto de Física, UNICAMP, Brazil

- PP22-A** Ionising radiation in medical physics and dose distributions in patients undergoing systematic radiation therapy
Jilali Ghassoun and Abdellatif Jehouani
Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco
- PP23-B** General relativity in high school: From Newton gravity to Einstein's space-time
Neiva Godoi¹, Esmerindo de Sousa Bernardes² and Débora Coimbra³
¹Escola Estadual Sebastião de Oliveira Rocha – São Carlos, SP; ²Instituto de Física de São Carlos, Universidade de São Paulo, São Carlos, ³Departamento de Física, Universidade do Estado de Santa Catarina, Joinville, SC, Brazil.
- PP24-B** Teaching energy: Interdisciplinary study in adult education
Débora Coimbra¹, Neiva Godoi^{2,3} and Yvonne P. Mascarenhas³
¹Departamento de Física, Universidade do Estado de Santa Catarina, Joinville, SC; ²Escola Estadual Sebastião de Oliveira Rocha – São Carlos; ³Instituto de Estudos Avançados, Universidade de São Paulo, São Carlos, Brazil
- PP25-B** Experimental activities with dynamic systems
Alejandro González-y-Hernández
Facultad de Ciencias, Universidad Nacional Autónoma de México
- PP26-B** The relationship between selected affective characteristics related to physics and perceptions of physics achievement
Almer (Abak) Gungor
Ankara University, Faculty of Educational, Turkey
- PP27-D** Formation by the research in physical sciences: Example of a formation around a spectrometer
Abdelilah Kaddouri and Khalid Berrada
SIAM, Physics Department, Faculty of Sciences-Semlalia, Marrakech, Morocco
- PP28-B** Centre for physics education and its activities for the development of physics education in Pakistan
Aziz Fatima Hasnain¹, Jabeen Islam² and Saadia Naz³
¹Centre for physics Education; ²Physics Department, DA College for Women, Karachi; ³Physics Department, St. Joseph's College, Karachi, Pakistan
- PP29-B** Preparing teachers to teach physics and physical sciences by inquiry
Ishtiaq Ahmad and Adnan Khan
Hazara University Mansehra, NWFP, Pakistan
- PP30-B** Conventional and environmental scanning electron microscope and physics education
Lahcen Khouchaf
Centre de Recherche de l'Ecole des Mines de Douai, France
- PP31-F** Women in Science in Morocco Association
Mina Bettachy
Women in Science in Morocco Association, Casablanca, Morocco

- PP32-D** The role of the Moroccan Society of Applied Physics in promoting physics education
Rafik Channa, Abdelkader Outzourhit and Khalid Berrada
SMPA, Faculty of Sciences Semlalia, Cadi Ayyad University, Morocco
- PP33-B** Gref's project: Teaching physics from everyday life- working with thermodynamics
Cristina Leite¹ and Yassuko Hosoume²
¹Centro Federal de Educação Tecnológica (CEFET-SP); ²Universidade São Paulo (USP), Brazil
- PP34-D** Task complexity and self-efficacy in constructivist-based semi-structured physics practical work
Edna D. Dominguez
West Visayas State University, La Paz, Iloilo City, Philippines
- PP35-C** The problem of finding difficulties between actual education and distance education, in the formation of high school's physics professors
Louzada João Ricardo de Castilho
High School Externato São José, Brazil
- PP36-A** Contribution to ATLAS calorimetry
A. Elkharrim, J. Derkaoui, F. Maaroufi, B. Dekhissi and H. Dekhissi
LTPM, Faculty of Sciences Oujda, Morocco
- PP37-E** The formation of "Fantastic" physics popularizers
Miguel Angel Manzanares, Miguel García and Edgar Arturo Ramos
Museo de Ciencias, Universidad Autónoma de Zacatecas, Mexico
- PP38-C** Thermal physics experiments in the young and adult education
Mateus Manassés de Faria e Souza
Universidade Federal de Itajubá, Brazil
- PP39-F** Egyptian women in physics
Galila Mehena
Physics Dept., Faculty of Science, Cairo University, Giza, Egypt
- PP40-A** The history of the science in the teaching of universal gravitation
Kleber Luiz Nogueira
Escola Estadual Silverio Sanches, Universidade Federal de Itajubá, Brazil
- PP41-E** Science culture from a University's Museum
Bertha Michel, Miguel García and Antonio Villarreal
Universidad Autónoma de Zacatecas, México
- PP42-A** Simple pendulum in non-inertial frame
A.P. Taggarse¹ and Ashok Mody²
¹Principal & Head (Retd.) of Dept. of Physics, R.D. National College, Bandra (W), Mumbai; ²Mithibai College, Vile Parle (W), Mumbai, India
- PP43-C** Origin and structure of the Latin American Journal of Physics Education
Cesar Mora and J. Antonio Díaz
Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada del Instituto Politécnico Nacional, Mexico

- PP44-B** A survey of Karachi secondary school physics teachers understanding of the earth place in the universe
Jehan Ara Mayo¹, Syed Imtiaz Hussain Naqvi² and Muhammad Imran²
¹Govt. Adamjee Science College Karachi, Pakistan; ²SST Science, Govt. Pilot Secondary School, Wahdat Colony Lahore, Pakistan
- PP45-D** Science teaching in a disadvantaged South African school: A case study
Nkopodi Nkopodi
University of South Africa, South Africa
- PP46-E** Elements about actualization and pedagogical practices of physics teachers
Christiano Nogueira^{1,2}, Paulo Sérgio Enzo¹, Paulo Roberto Lagos¹ and Evandro Luiz de Queiroz¹
¹Centro Universitário Campos de Andrad; ²Colégio Estadual do Paraná, Brazil
- PP47-B** An experiment of a sterling engine
Toshihiko Ogihara¹, Yuji Takamoto² and Tomio Motoyama¹
¹Dept. of General Science, School of Veterinary Medicine, AZABU University; ²SAPPORO Holdings LTD, Japan
- PP48-A** Master in fundamental physics
Amane Oueriagli and Mustapha Oulne
Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco
- PP49-A** Analytical solution of the Thomas – Fermi equation
Mustapha Oulne and Jilali Ghassoun
Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco
- PP50-D** Renewable Energies and their applications: A professional undergraduate major to promote sustainable development in Morocco
A. Outzourhit, A. Benouna, A. Khiara, Z. Zrikem and A. Brakez
Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco
- PP51-B** Observational astronomy as a tool for physics learning motivation
R. C. de Almeida, I.G. de Moraes, E. S. Duarte and J. A. M. Pereira
Centro Federal de Educação Tecnológica de Química de Nilópolis, Rio de Janeiro, Brazil
- PP52-B** Science fiction in physics teaching a socio-cultural approach
Piassi Luís Paulo^{1,2} and Pietrocola Maurício¹
¹Universidade de São Paulo, Brazil; ²Faculdades Oswaldo Cruz, Brazil
- PP53-E** Well-succeeded experience with contemporary physics: In public schools
Maxwell Siqueira and Maurício Pietrocola
Universidade de São Paulo, Faculdade de Educação, Brazil
- PP54-E** Teaching of modern physics in secondary education: A course on special relativity
Guilherme Brockington¹, Ivã Gurgel², Fábio Beig³ and Maurício Pietrocola⁴
^{1,2,4}Universidade de São Paulo, Faculdade de Educação, ³Escola Estadual Gonçalves Dia, Brazil

- PP55-B** The use of activities for the teaching of modern physics in the secondary school
Guilherme Brockington, Maxwell Siqueira and Maurício Pietrocola
Faculdade de Educação, Universidade de São Paulo, Brazil
- PP56-E** In search of a good physics communicator
Piyush G. Karia
S.N.K. School, University Road, Rajkot, Gujarat, India
- PP57-B** Physics teaching in elementary teachers formation
Caroline Dorada Pereira Portela
Federal University of Paraná-UFPR, Brazil
- PP58-E** Weaving ties on the earth and beyond
Glória Regina Pessoa C. Queiroz, Maria da Conceição Barbosa-Lima, Maria Auxiliadora Machado and Rosana Bulos Santiago
Universidade do Estado do Rio de Janeiro (UERJ), Brazil
- PP59-B** Science history: Teachers training programs and physics manuals in Morocco
Abdelaziz Razouki, Fouad Chafiqi and Abdeljalil Maarouf
ENS Marrakech, Morocco
- PP60-C** Digital technology and Ausubel theory for thermophysical learning
Julio Ribeiro¹, Gilson Carmo-Filho¹ and Auxiliadora Blum²
¹Universidade Federal do Ceará; ²Centro Federal de Educação Tecnológica do Ceará, Brazil
- PP61-B** The affectivity in physics teaching: A qualitative study
Diego Marcelli Rocha
Universidade Federal de Itajubá, São Paulo, Brazil
- PP62-E** Physics Education in Tanzania
Margaret Samiji
Physics Department, University of Dar es Salaam, Tanzania
- PP63-B** Report on the introduction of one experimental activity for the abstract content of modern and contemporary physics in high school
Sousa¹ Wellington B., Melo² Dejour G., Tetzner² Guaraciaba, Tagiku², Armando M., Paiva¹ Josias R., Ueta³ Nobuko, Pietrocola¹ Mauricio
¹Faculty of Education, University of São Paulo; ²Public Secondary Schools of São Paulo; ³Institute of Physics, University of São Paulo, Brazil
- PP64-B** Particles and waves: From classical to quantum physics
Carlo Tarsitani
Department of Physics University of Rome “la Sapienza”, Italy
- PP65-C** The development of the multimedia contents which support the understandings of the principle of stirling cycle engine
Tomoaki Sato^{1,2}, Keizo Nagaoka² and Kosei Oguchi¹
¹Department of Mechanical Engineering, Kanagawa Institute of Technology, Shimo-ogino, Atsugi, Kanagawa; ²Faculty of Human Science, Waseda University, Mikajima, Tokorozawa, Saitama, Japan

- PP66-B** Science education vehicle project to popularise science among students' youth and community
Vijaykumar C. Verekar and Vidnyan Prabodhini
The Progress High School Sanquelim Goa, India
- PP67-D** The lessons for unity with causal and acausal connections
Murli M. Verma
Department of Physics, Lucknow University, Lucknow 226 007, India
- PP68-B** Spectrum of physics lecture understanding
Blasiak Wladyslaw and Rosiek Roman
Cracow Pedagogical University, Poland
- PP69-D** A "Grand Challenge" measuring information societies
Tamer Yahia
Faculty of Engineering, Cairo University, Egypt
- PP70-B** Mastering physics study skills
Nouredine Zettili
Department of Physical & Earth Science, Jacksonville State University, Jacksonville, AL 36265, USA
- PP71-B** Des aspects pédagogiques de l'enseignement de la physique moderne à l'université
Hocine Aouchiche et Tassadit Ibouchoukene
LMSE, Université Mouloud Mammeri, Tizi-Ouzou, Algérie
- PP72-A** L'utilisation de la technique gamma camera en médecine nucléaire
M. Benaouda et M. Benyoucef
Laboratoire de Biophysique, Université de Tlemcen, Faculté Médecine, Département de Médecine, Tlemcen, Algérie
- PP73-D** Les idées des étudiants algériens entrant à l'université sur la propagation de la lumière et la formation d'images
D. Blizak¹, F. Chafiqi² et D. Kendil³
¹Université UMBB, Faculté des Sciences, Boumerdès, Algérie; ²ENS de Marrakech, Maroc; ³ENS de Kouba, Alger, Algérie
- PP74-A** Les jeunes tunisiens et les carrières scientifiques
Chabchoub Ahmed et Allani Najoua
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