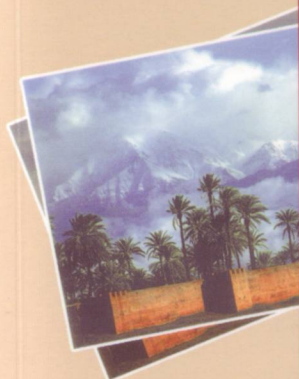


UNDER THE HIGH PATRONAGE OF HIS MAJESTY
THE KING MOHAMMED VI



ICPE2007

November, 11 - 16, 2007
Marrakech - Morocco



INTERNATIONAL CONFERENCE
ON PHYSICS EDUCATION
Building Careers with Physics



ABSTRACTS



INTERNATIONAL PROGRAMME COMMITTEE

Imrana Ashraf Zahid, Quaid -i- Azam University, Islamabad, Pakistan
Khalid Berrada, Cadi Ayyad University, Morocco
Pratibha Jolly, Miranda House, University of Delhi, India
Priscilla Laws, Dickinson College, USA
Jon Ogborn, University of London, UK
Abdelkader Outzourhit, Cadi Ayyad University, Morocco
Mauricio Pietrocola, University of Sao Paulo, Brazil
Laurence Viennot, University of Paris, France

INTERNATIONAL ADVISORY BOARD

Minella Alarcon, Programme Officer for Basic Sciences, UNESCO
Lahcen E. Ameziane, Cadi Ayyad University, Morocco
Zohra Ben Lakhdar, Tunisian Society of Optics, Tunisia
Majed Chergui, Federal Polytechnique School of Lausanne, Switzerland
Abellatif Chiadli, CIPEGU, Faculty of Science Education, Morocco
Toshio Hyodo, University of Tokyo, Japan
Alain Jeannel, Victor Segalen University Bordeaux 2, France
Jamal Khallaf, Supreme Council of Education, Morocco
Vengu Lakshminarayanan, University of Waterloo, Canada
Luo Xingkai, Guangxi Normal University, China
Alex Mazzolini, Swinburne University of Technology, Australia
David Sokoloff, University of Oregon, USA
Mourad Telmini, University of Tunis, Tunisia
Dean Zollman, Kansas State University, USA

© ICPE2007 – Book of Abstracts

International Conference on Physics Education: Building Careers with Physics

November 11-16, 2007 – Cadi Ayyad University Marrakech, Morocco

Edited by: Khalid Berrada, Imrana Zahid Ashraf, Abdelkader Outzourhit

Web design: Neptis Info

Cover design: SPIE, Jouda Marir

Printed by: El Watanya Marrakech



Ján Degro	108
Jehan Ara Mayo	195, 236
Jilali Ghassoun	214, 241
Joachim H. Schlichting	35
Joao Batista Furlan Duarte	194
Joel T. Maquiling	146
Jozef Hanc	197
Juan Carlos Alvarado Alcócer	194
Julio Ribeiro	167, 252
Jun Shozawa	174
K.V. Kandasamy	114
Kamalakannan Karthik	132
Kamel Loucif	269
Kamisah Osman	55, 70, 122,
Kaneez Raza Abedi	44, 124
Katemari Rosa	168
Keizo Nagaoka	257
Khadeeja Ibrahim-Didi	130
Khalid Berrada	100, 219, 224
Khalijah Mohd Salleh	31, 83, 153, 178
Khalil A. Ziq	190
Killner Gustavo Isaac	135
Kiyomitsu Suzuki	38
Kleber Luiz Nogueira	232
Kosei Oguchi	257
Kurt Maksad	81
Kyoko Ishii	69
Lahcen E. Ameziane	60
Lahcen Khouchaf	222

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*

We present an outline of a nontraditional version of modern physics course, which reflects progress in modern technologies and also in modern teaching approaches. The course intended for final years of high schools and based on Feynman¹, Taylor and Wheeler's² works has been developing by us since 1999.

We use technology of interactive lecture demonstrations of Thornton & Sokoloff³ combined with Mazur's Peer instruction⁴. The most powerful tool for introducing fundamental ideas became the computer software, especially Physlets technology. Contents of the course without advanced math was also created in collaboration with Jon Ogborn⁵, leader of UK project Advancing Physics and Edwin Taylor² from MIT, author of Feynman's quantum university course of quantum mechanics.

As our results show contents and methods are very motivating for students, but simultaneously deeply develop conceptual understanding. The similar approach and content is included in the subject - Modern physics for future high school teachers taught by us at our University.

References:

1. R.P. Feynman, R.B., Leighton, QED, The Strange Theory of Light and Matter (Princeton University Press, Princeton, 1985).
2. E.F. Taylor, J.A. Wheeler, Space-Time Physics, (Freeman, New York 1992); Taylor, Demystifying quantum mechanics (MIT, 2000).
3. D.R. Sokoloff, R.K., Thornton, Interactive Lecture Demonstrations, (John Wiley & Sons, New York, 2004).
4. Mazur, E., Peer Instruction: A User's Manual (Prentice Hall, New York, 1997).
5. J. Ogborn, J., M. Whitehouse, M. (eds.), Advancing Physics AS, (Institute of Physics Publishing, Bristol, 2000).