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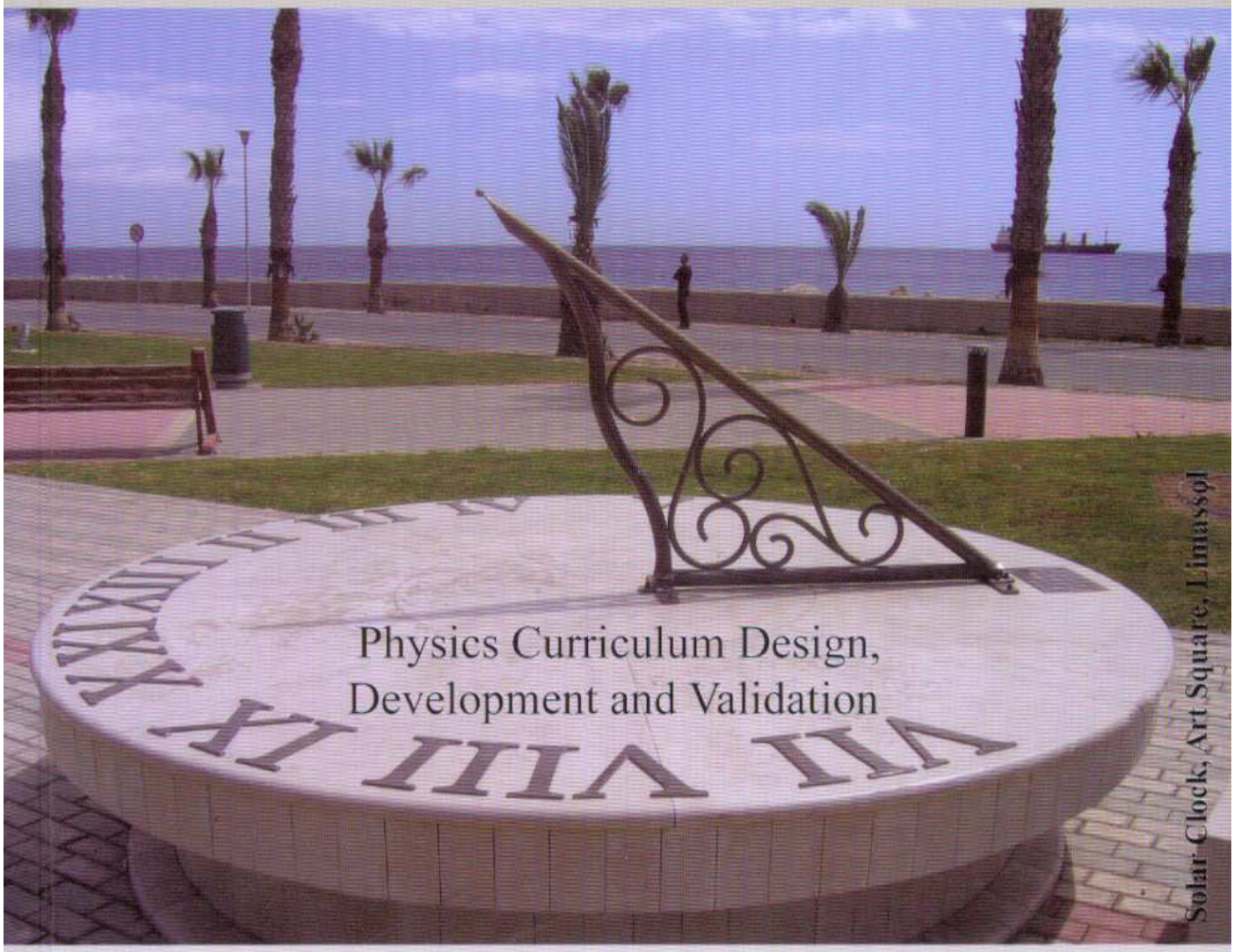

Solar Clock, Art Square, Limassol

Program and Book of Abstracts

August 18 - 22, 2008, Nicosia, Cyprus

Learning in Science Group

University of Cyprus

High-tech kit - The set of activities from the MOSEM project as an example of appropriate use of real and virtual multimedia in physics teaching and learning

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The most tangible outcomes of the MOSEM (Minds-On experimental equipment kits in Superconductivity and ElectroMagnetism for the continuing vocational training of upper secondary school physics teachers – LLP-LdV-TOI-2007-NO/165.009) project are two sets of kits – Low and High Tech. The kits contain the experiments, prototyped and trialed among the project partner schools and teacher training institutions and are combined with e-modules comprising videos, animations, and modeling as well as with new support material for teachers and teacher seminar. The paper presents in details the High-Tech materials as appropriate use of real and virtual multimedia in physics teaching and learning. The authors focus also on possible contribution/improvement to formal/informal development of physics curricula from the use of the MOSEM kits.

3D Multimedia Software for Teaching and Learning Physics

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Newton gives a completely new way of teaching and learning physics, by allowing to explore kinematics, dynamics, electricity and optics in 3D. Teachers and students can easily build and investigate real-life 3D physics experiments and use Newton's special graphic tools to create educational materials, tests and problem sets. A unique feature of Newton, compared with earlier one- and two-dimensional approaches, is that, while it shows real world 3D physical experiments, it is still possible to compare and verify the results with classic formulas. This allows the student to establish a clear connection between the real world and its mathematical models, and develop student's model creating capabilities. Another novelty of Newton is the possibility of coupled modelling of mechanics, electricity and optics. In our presentation we will discuss the algorithms used for coupled modelling of dynamics, constraints, DC/AC electricity, and 3D optics followed by live