

WS4 – MOSEM² project. Integration of data acquisition, modelling, simulation, and animation for learning Electromagnetic and Superconductivity

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The MOSEM² project, funded by European Commission, seek to extend the experiments and materials from the twin project MOSEM by adding a set of computer aid activities covering a series of topics in electromagnetism and superconductivity. The new developed activities integrate different ICT technologies: data acquisition, data video, modelling, simulation and animation. The MOSEM² primarily targets physics teachers in upper secondary schools and trainee physics teachers.

The first part will contain the presentations of three experiments, with the data acquisition, modelling, simulation, and animation.

Program of workshop:

- Introduction to MOSEM² project & integration concepts - Vegard Engstrøm
- Explanation different ICT techniques - Ewa Kędzierska
- Explanation using of simulations - Francisco Esquembre
- Summary of pedagogical issues, future of project - Wim Peeters
- Three different experiments will be presented with different data acquisition methods:
 1. Explanation of experiment “Temperature depending of resistivity in bulb”
 2. Explanation of experiment “Oscillating magnet in coil”
 3. Explanation of experiment “Ski jumping in a magnetic field”
- Minds-on activities and Coach for participants (rotation)

The second part of workshop will be active work of all participants. They will make real experiments with data acquisition, modelling, simulation. Different types of worksheets are offered for educational proposal.

In the workshop the single experiments, methodological approach, the role of multimedia in learning path on superconductivity will be discussed.