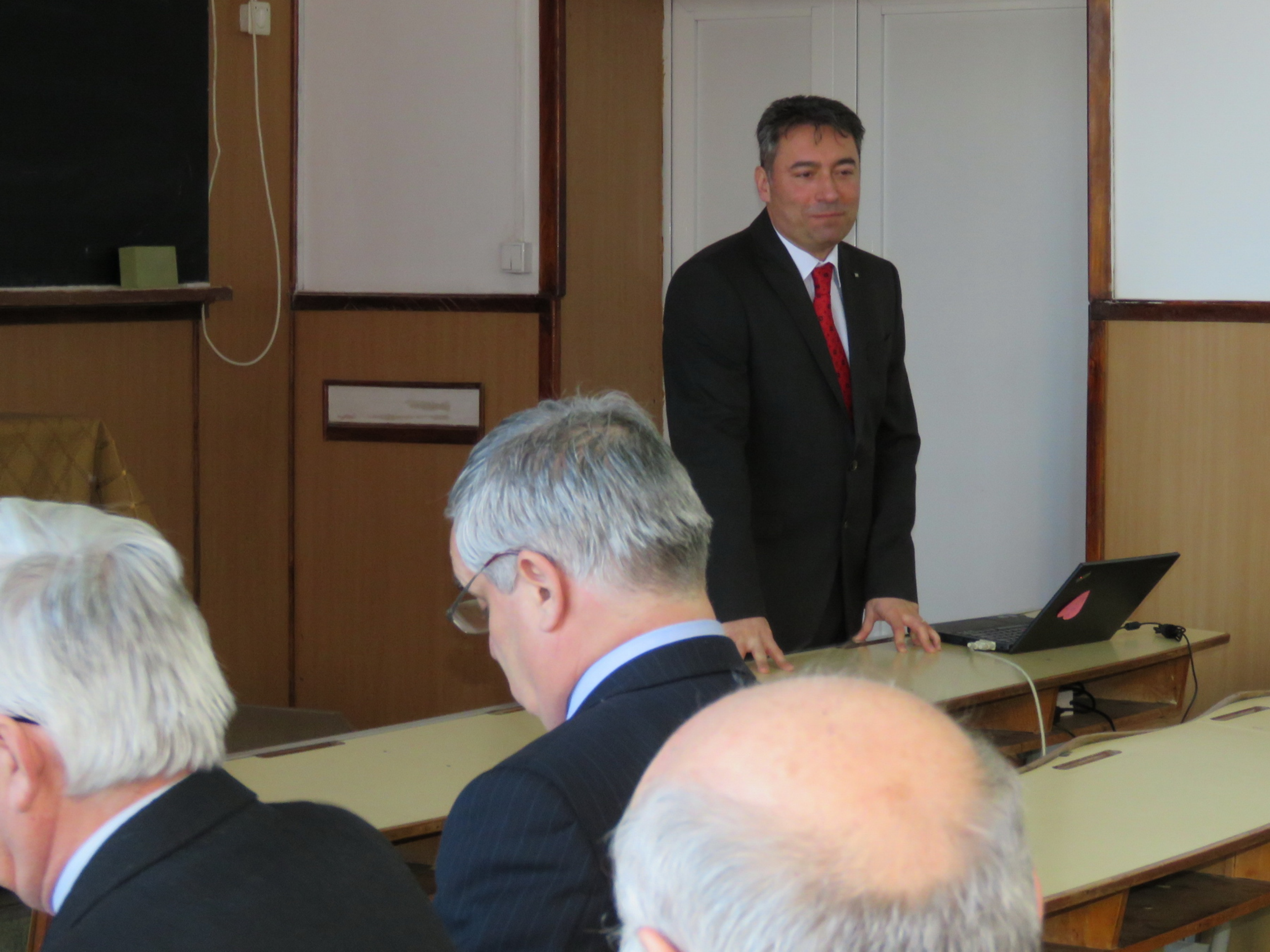
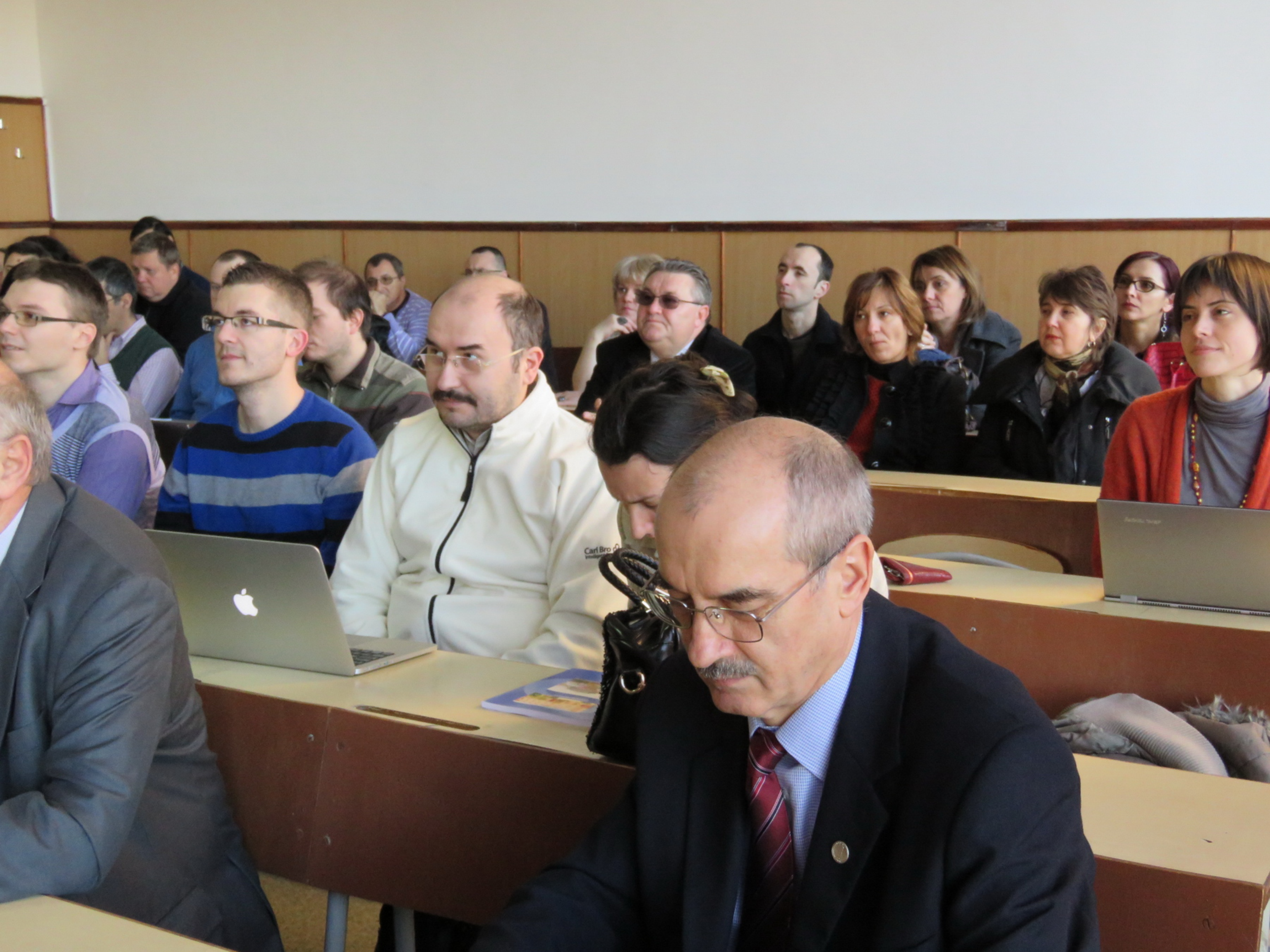
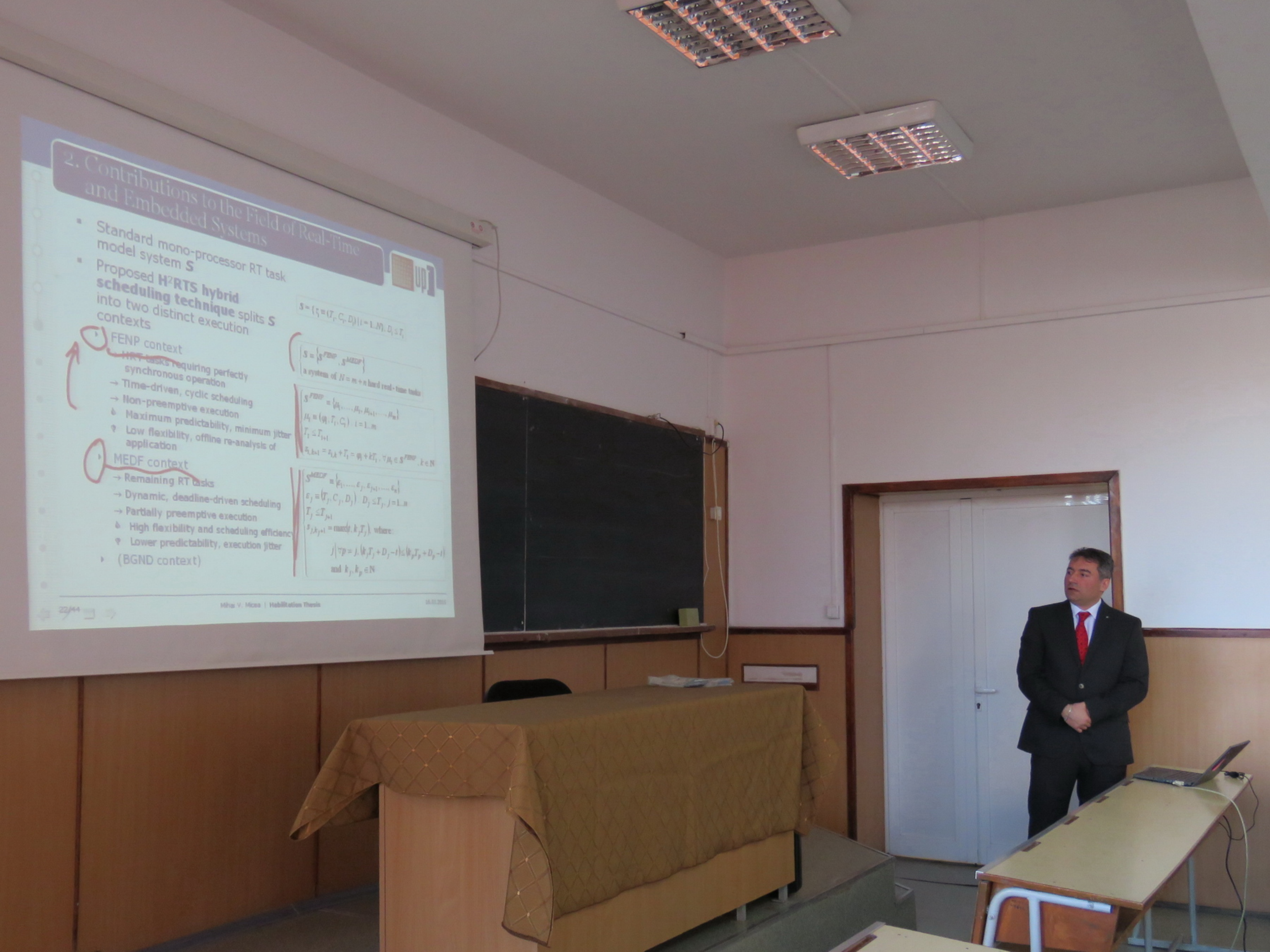



Carl Bro


2. Contributions to the Field of Real-Time and Embedded Systems
Standard mono-processor RT task model system S
Proposed H²RTS hybrid scheduling technique splits S into two distinct execution contexts
FENP context
HRT tasks requiring perfectly synchronous operation
→ Time-driven, cyclic scheduling
→ Non-preemptive execution
Maximum predictability, minimum jitter
Low flexibility, offline re-analysis of application
MEDF context
→ Remaining RT tasks
→ Dynamic, deadline-driven scheduling
→ Partially preemptive execution
High flexibility and scheduling efficiency
Lower predictability, execution jitter
(BGND context)
a system of N = m + n hard real-time tasks
Mihai V. Micea | Habilitation Thesis
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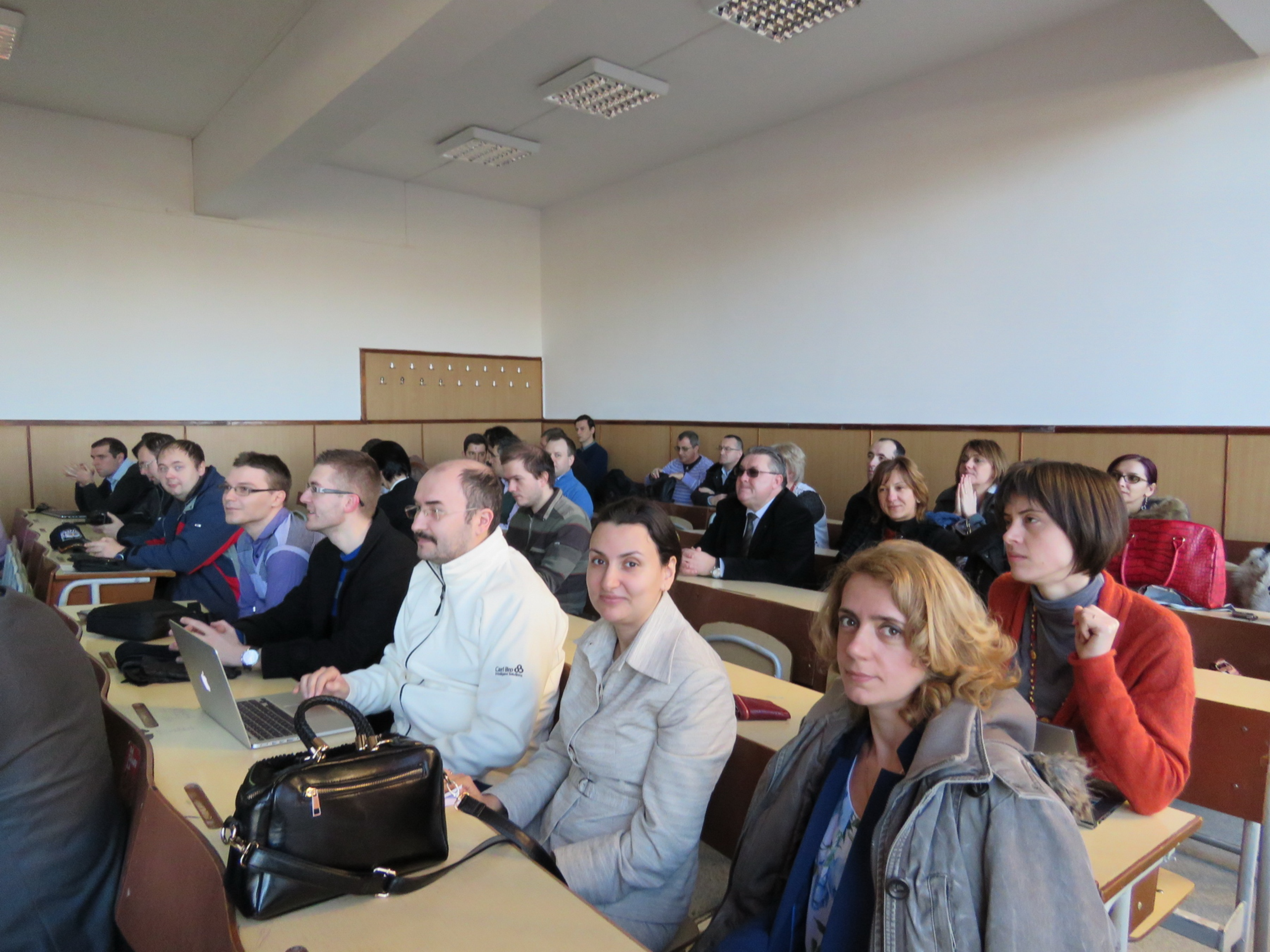
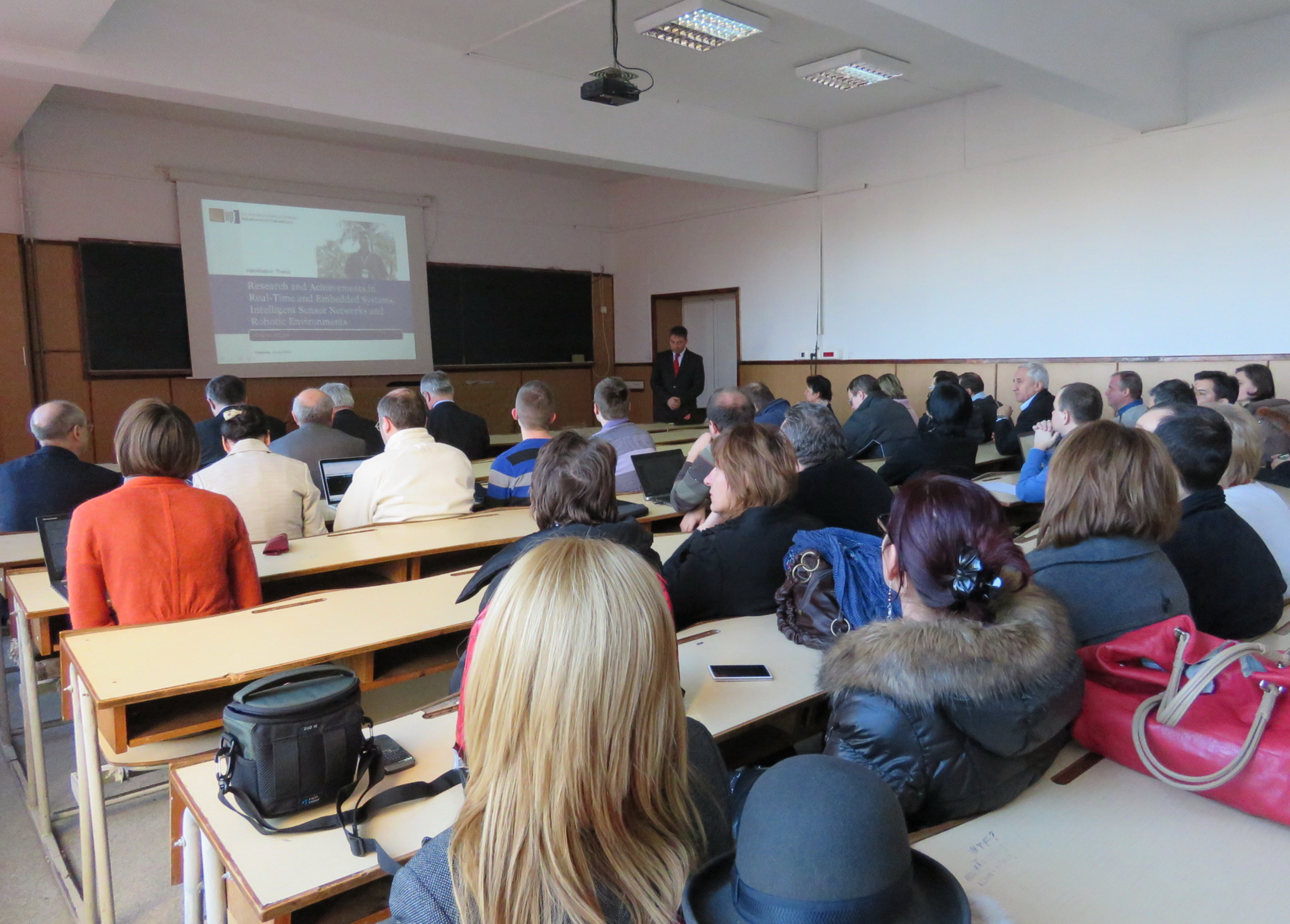
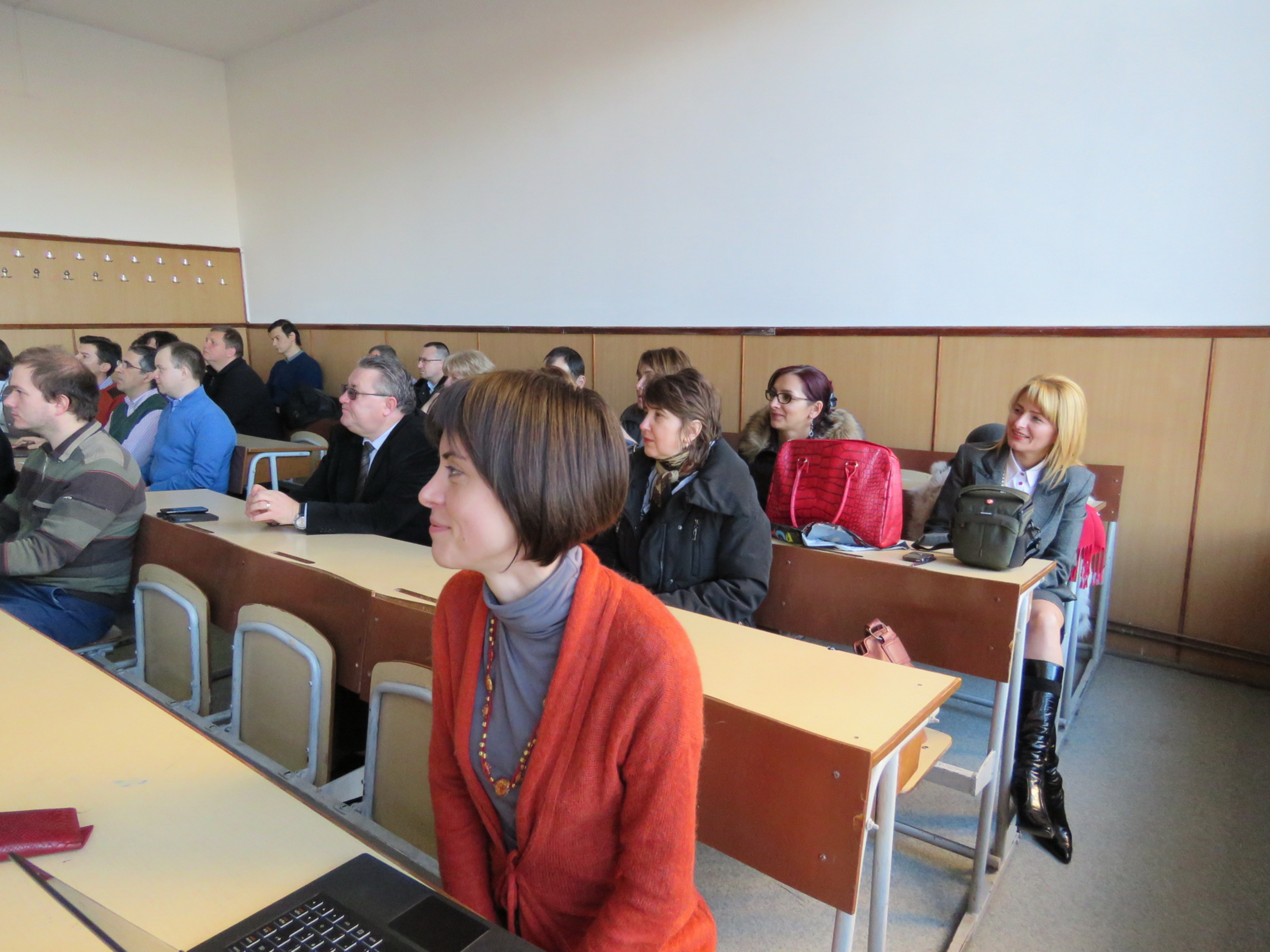
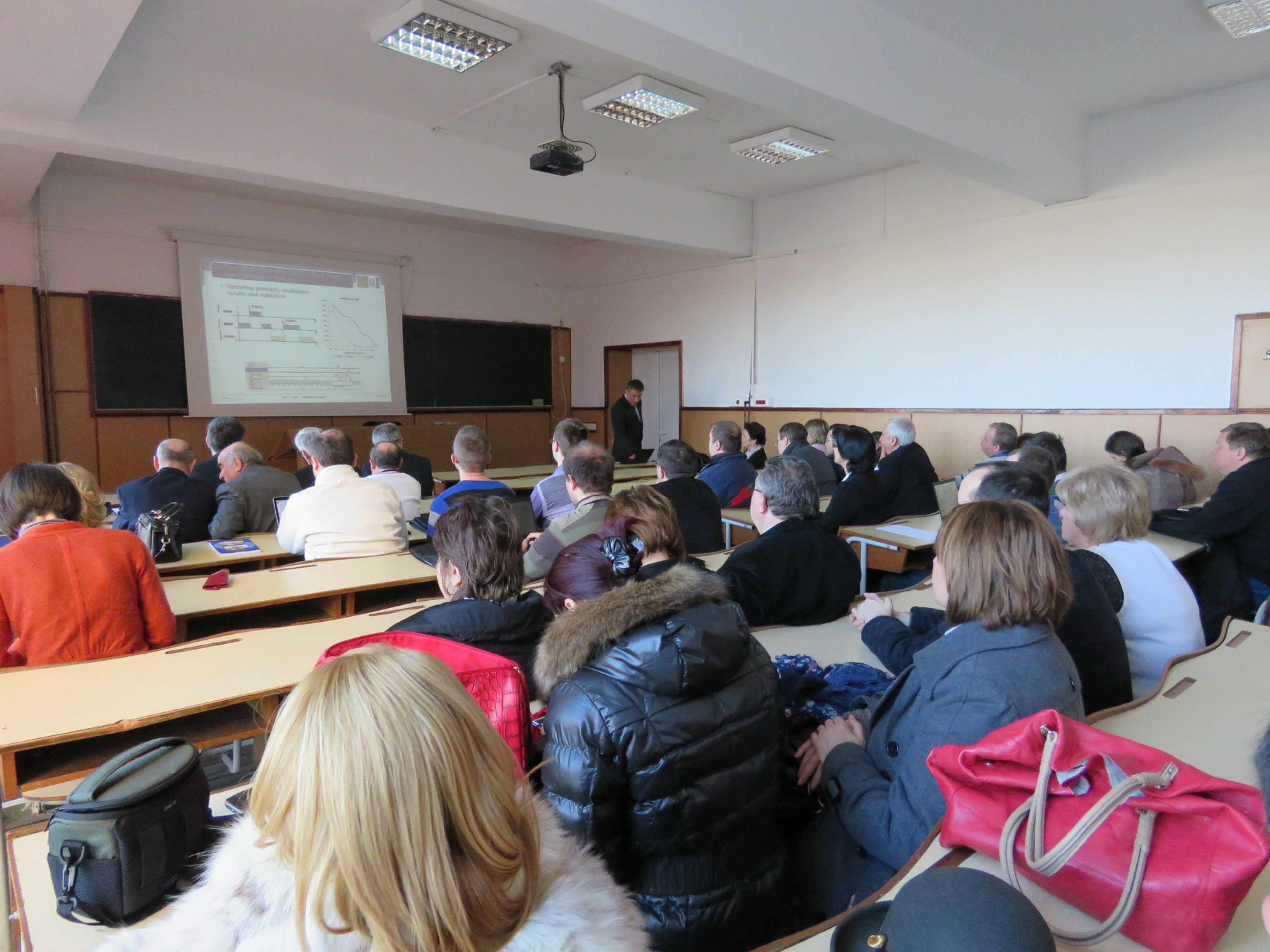
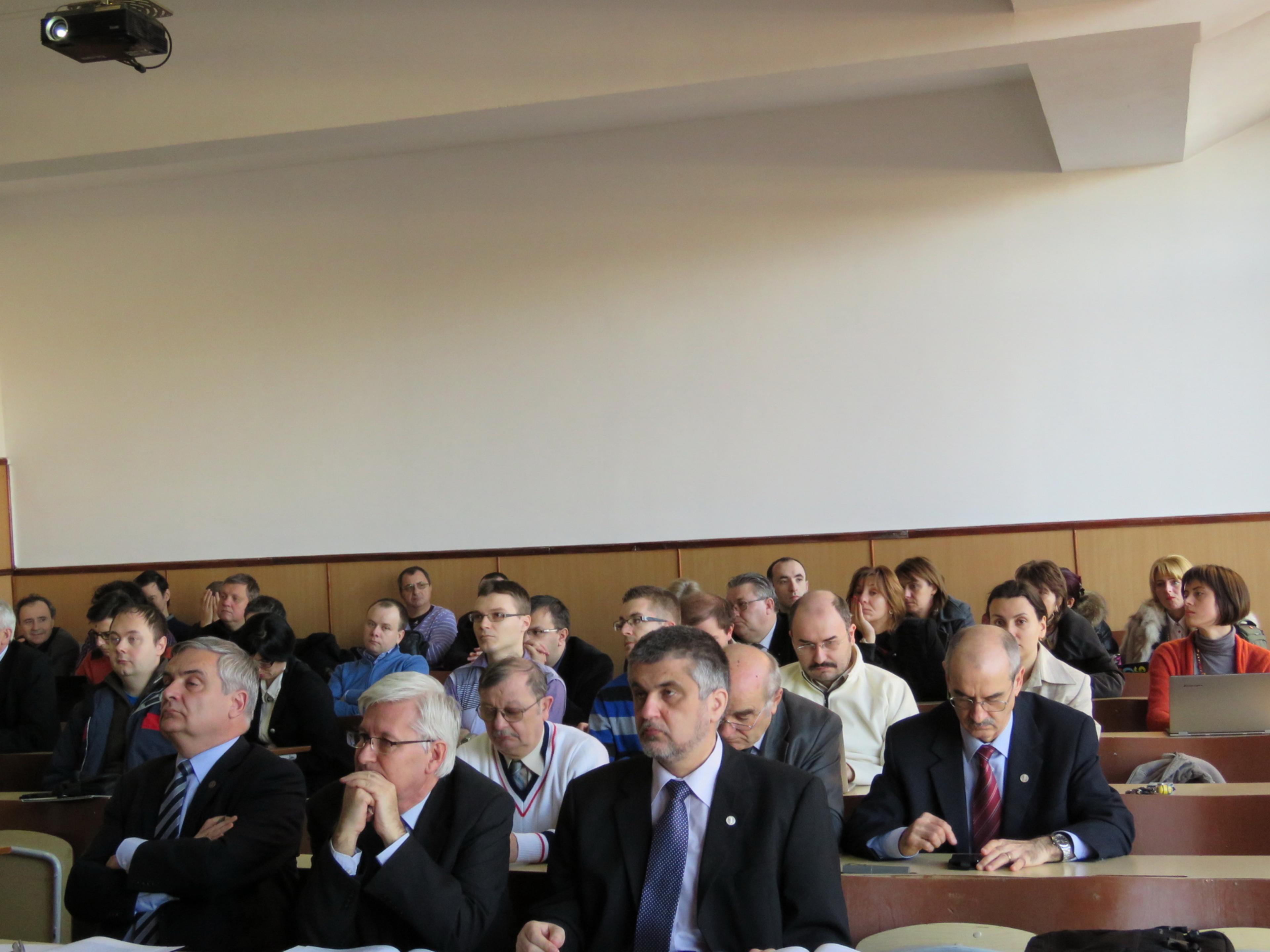
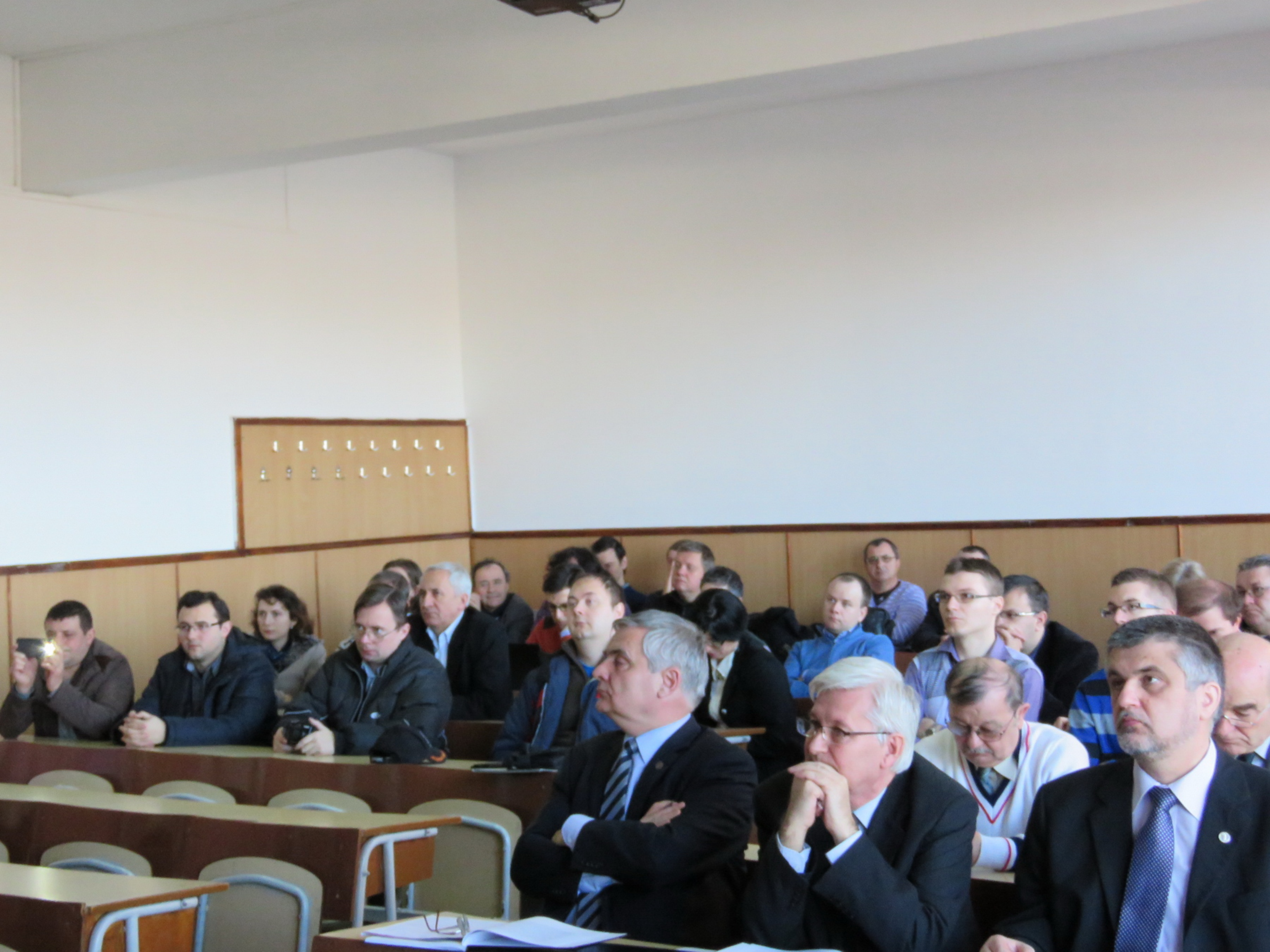


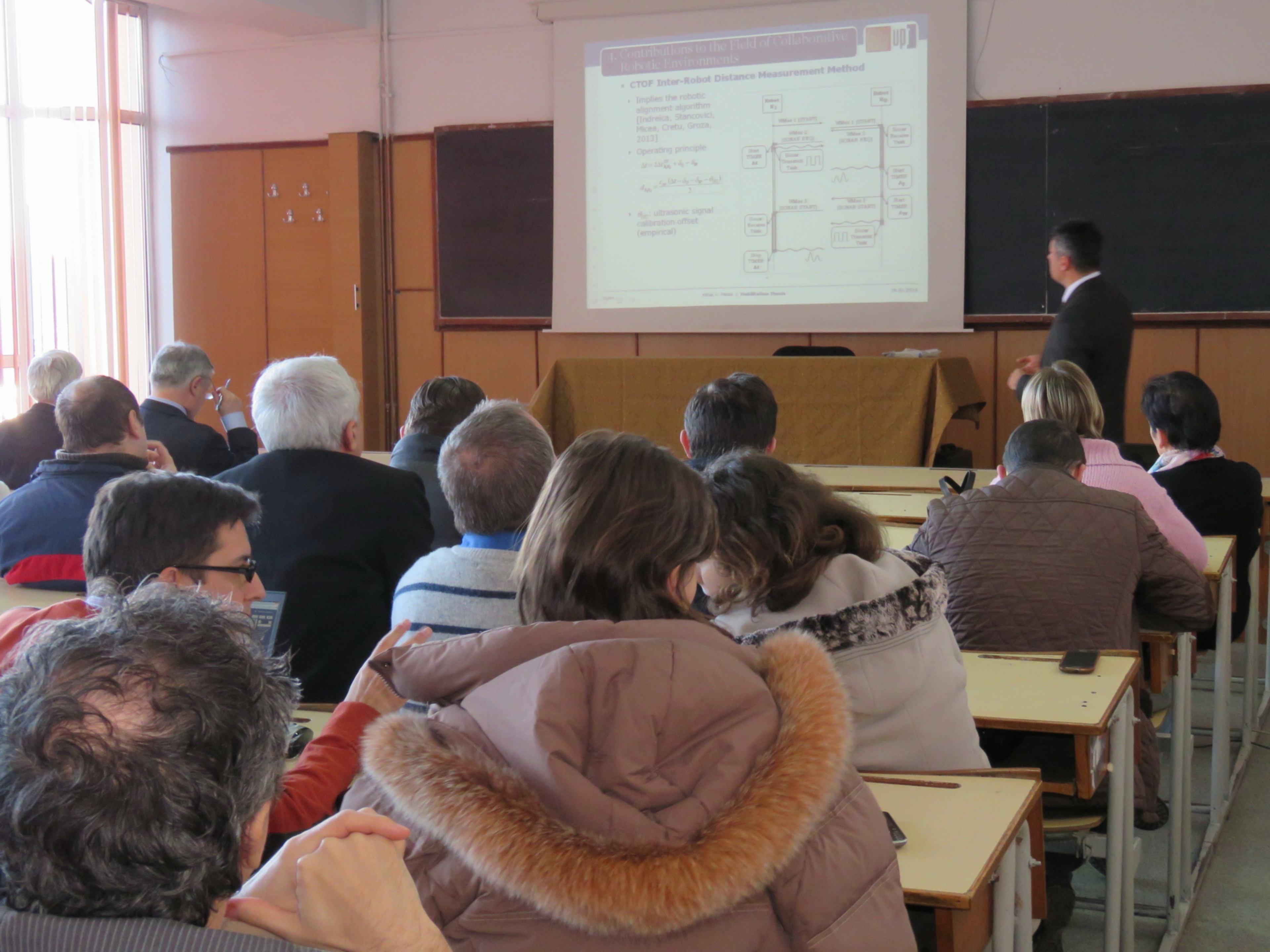

Habilitation Thesis
Research and Achievements in
Real-Time and Embedded Systems,
Intelligent Sensor Networks and
Robotic Environments




Operating principle, evaluation results and validation






4. Contributions to the Field of Collaborative Robotic Environments
CTOF Inter-Robot Distance Measurement Method
Implies the robotic alignment algorithm [Indreica, Stancovici, Micea, Cretu, Groza, 2013]
Operating principle
ultrasonic signal calibration offset (empirical)
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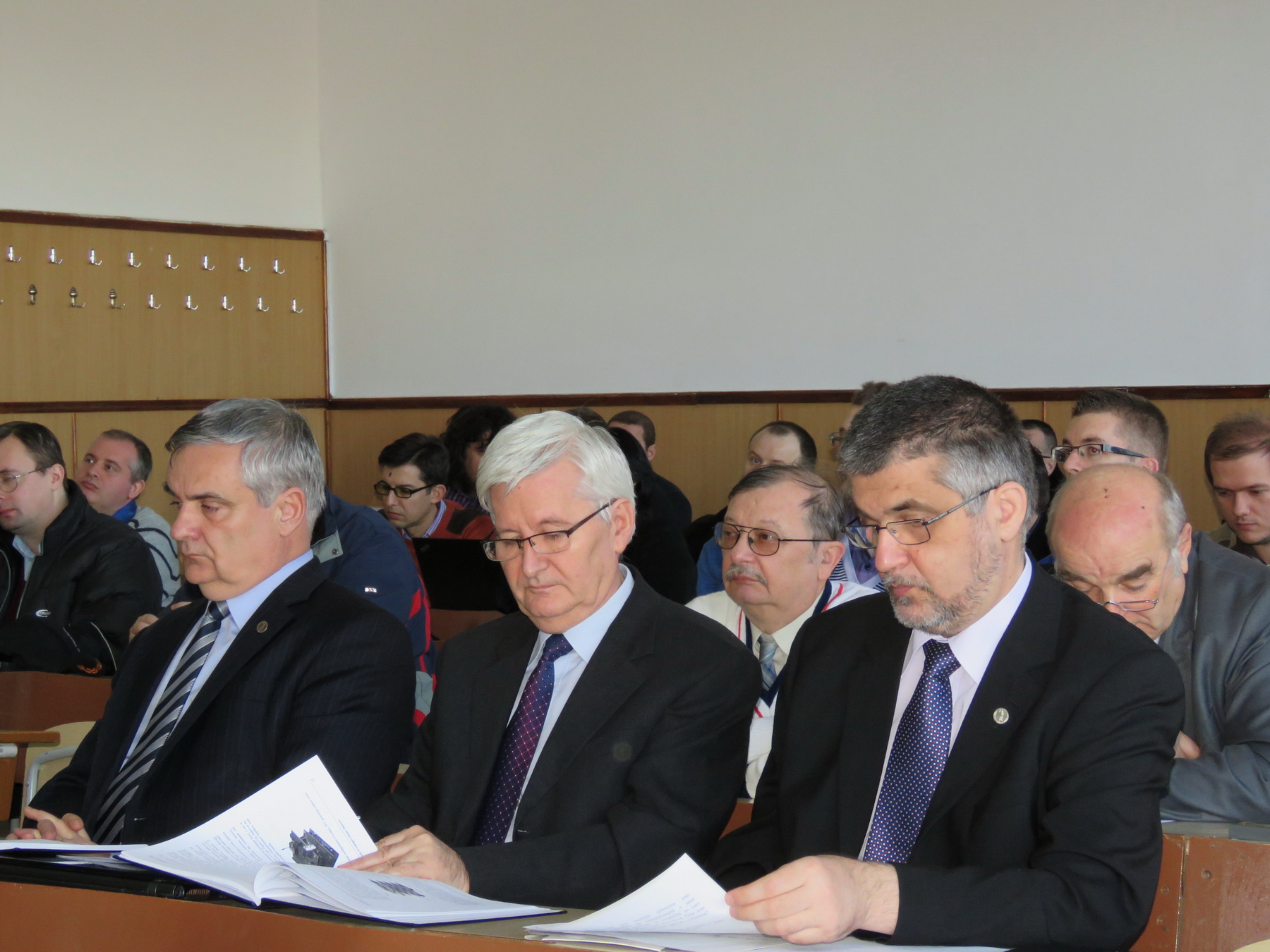

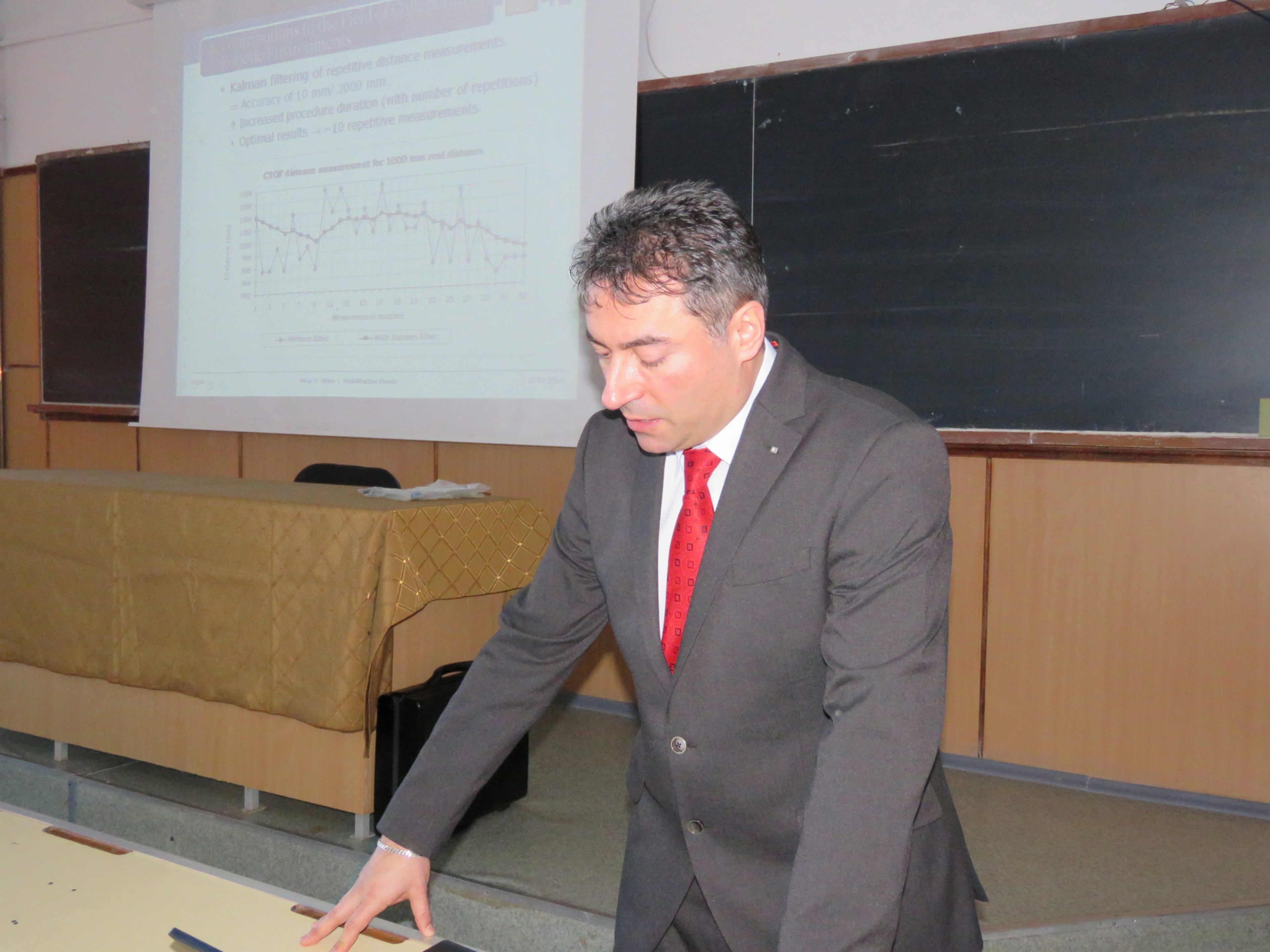
Kalman filtering of repetitive distance measurements
⇒ Accuracy of 10 mm/ 3000 mm
Increased procedure duration (with number of repetitions)
Optimal results → ~10 repetitive measurements
CTOF distance measurement for 1000 mm real distance
Measurement number
Without filter
With Kalman filter
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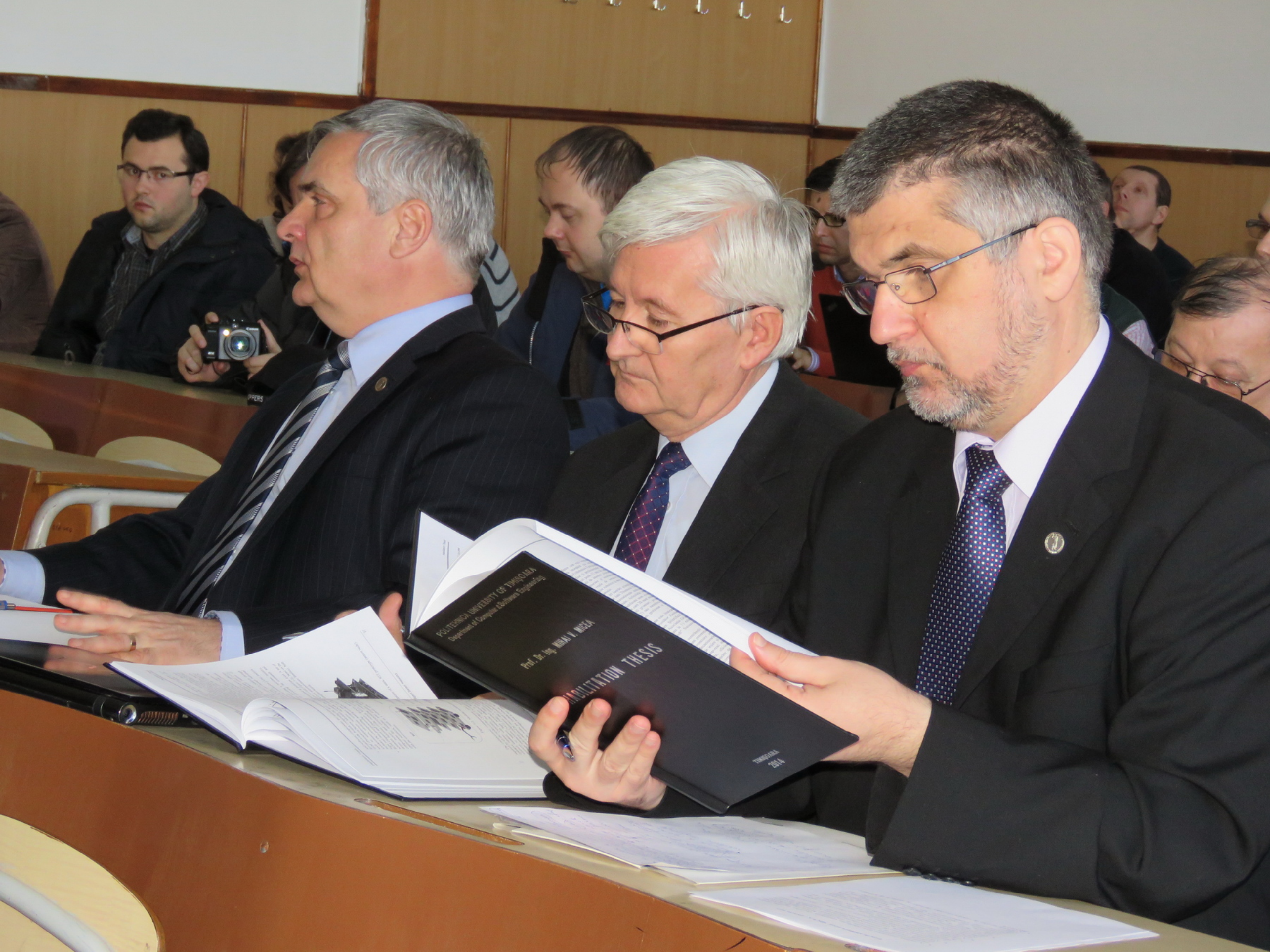
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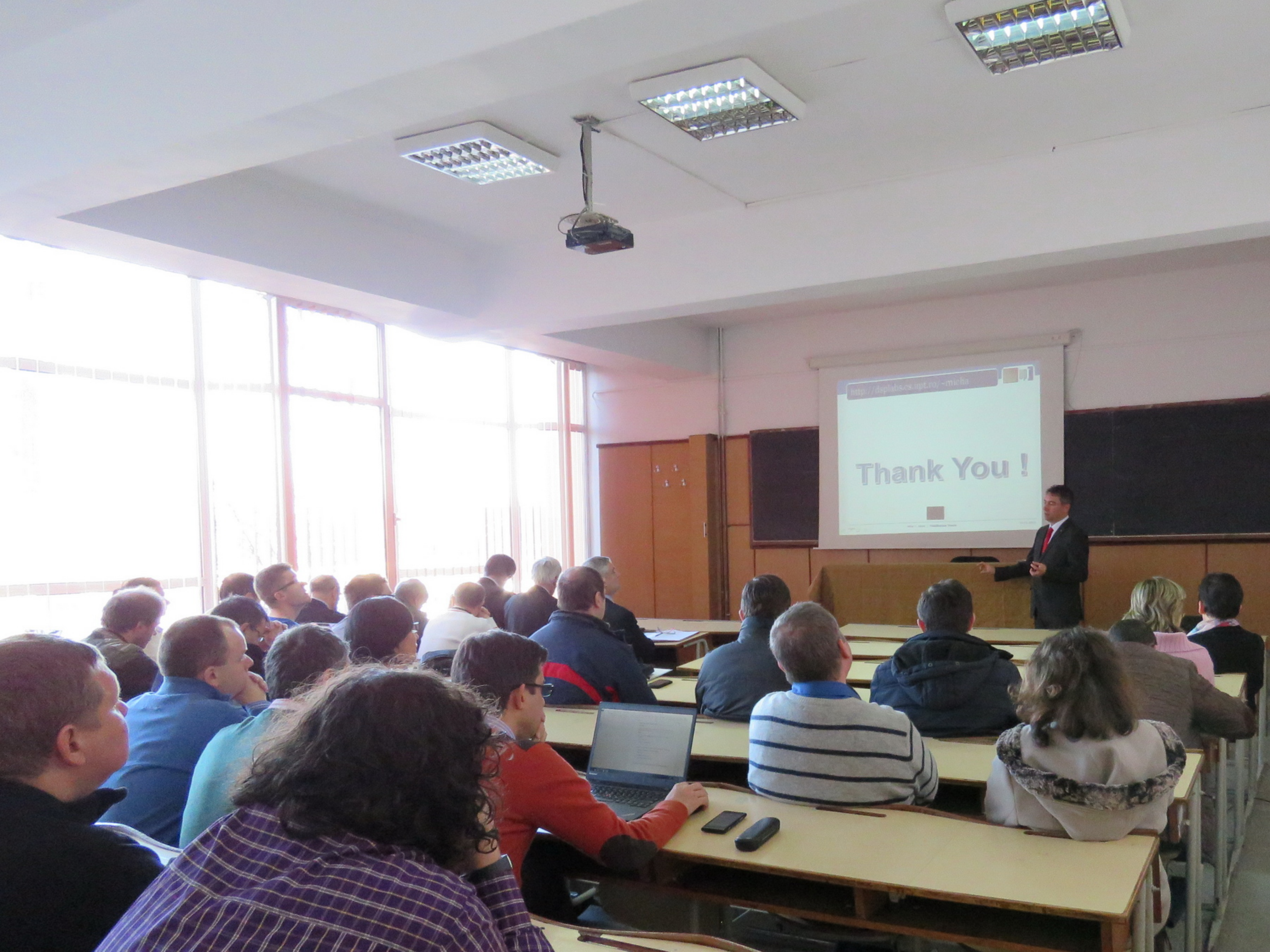
Department of Computer & Software Engineering
Prof. Dr. Ing. MIHAI V. MICEA
THESIS
TIMIŞOARA
2014


Thank You !