

### **34. Ildikó Perjesi-Hámori and Csaba Sárvári**

#### **More or less? Using CAS in Mathematics teaching based on 15 years of experience**

In our talk, we will summarize the experiences from our 15 years since begin using Computer Algebra Systems in teaching Mathematics at the University of Pécs, Hungary. In the beginning (let's call it experimental period) we tried to examine the usage of CAS from a didactical point of view (multiple representation, modularization, internet as a new tool, experimental learning in CAS environment, problem solving in CAS environment. During the subsequent period we used a pre-designed worksheets during the entire semester, which were distributed to students in the beginning of each semester. In this period, we (the teachers) discovered the possibilities of this new tool and tried to use it all the time. In the third period (currently), CAS is used not only in Maths courses at our Faculty, but also in several other courses such as cryptography and physics. We learned the didactical limits of CAS. During practical lessons students usually do not receive prepared worksheets, but only some assistance from teachers. So that, students solve problems alone under the supervision of teachers.

We will offer some examples how our way of teaching was changed throughout these periods due to the development of software and hardware; the results of our didactical experiments; and the new possibilities of blended learning. We show some observations to these questions: What is the difference between teaching students with different cultural backgrounds and preliminary knowledge? How can we teach small groups as well as large number of students?