Teaching Physics effectively by addressing student misconceptions with active learning methods

Physics lecturers often wonder: Which are the main difficulties encountered by my students? Is there a chance to support both: students with lower and with more advanced prior knowledge? How can I encourage my students to prepare for class and work continuously throughout the term? A combination of three active learning methods, Just-in-Time Teaching (JiTT), Peer Instruction (PI) and research-based collaborative worksheets (“Tutorials”), offer solutions to these problems. They are developed in the US by different groups in Physics Education Research. We have successfully adapted them in Rosenheim for six introductory Physics courses, and gain experience now for seven years: There is an increased learning gain, and a better performance in exams compared to traditional teaching methods. Students are supported to develop their reasoning skills and methodological competences. They report that the methods lead to a more pleasurable interaction of students and lecturers.

A complementary workshop will be offered in the morning of January 29. It focuses on the development of teaching material, and on Tutorials that address students’ misconceptions.

Venue: Hörsaal für Theoretische Physik, Linnéstraße 5
Coffee will be served outside the lecture hall before the colloquium starts.