

# Particle reactions in intense laser fields

*Dr. Carsten Müller*

*MPI für Kernphysik, Heidelberg*

Due to a remarkable progress in laser technology in recent years, intense laser pulses are capable today to accelerate electrons to GeV energies and to induce fundamental QED phenomena. The next generation of high-intensity lasers, which is currently being built, offers further prospects for applications in particle physics. In this theoretical talk, we shall describe the physical concepts of laser acceleration and discuss various laser-induced particle reactions, ranging from electron-positron pair creation to the associated production of Z and Higgs bosons in laser-boosted lepton collisions. The technical demands needed for an experimental realization of these high-energy processes will be specified.