

DESY School

## Computer Algebra and Particle Physics (CAPP 2009)

29 March – 3 April 2009  
Zeuthen, Germany

During the last years, computer algebra methods have been used widely throughout elementary particle physics. Applications of modern computer algebra are an essential and established calculational tool and, at the same time, methods and algorithms of computer algebra have become an important area of research itself.

The CAPP school combines theory and practice in advanced environment. It provides education and training of about 30 students and young researchers at graduate and Ph.D. level on central topics at the interface of modern computer algebra and particle physics. The courses include exercises and practical training with software and programs, the hands-on part being a central component of the school.

### Lectures and Courses

D. Bailey (Berkeley Lab)	<i>Arbitrary precision numerics and the PSLQ algorithm</i>
J. Gluza (Katowice), T. Riemann (DESY)	<i>Integrals, Mellin-Barnes representations and Sums</i>
T. Hahn (MPI Munich)	<i>Mathematica and Symbolic Computing</i>
K. Hasegawa (DESY)	<i>Real parton emission and automated dipole subtraction</i>
R. Mertig (Wolfram Research)	<i>New features of Mathematica</i>
S. Moch (DESY)	<i>Computer algebra in particle physics</i>
C. Papadopoulos (INP Athens)	<i>Feynman integrals and the OPP reduction</i>
M. Steinhauser (Karlsruhe)	<i>Loop integrals, integration-by-parts and MATAD</i>
P. Uwer (HU Berlin)	<i>Efficient computing in particle physics</i>
J. Vermaseren (NIKHEF)	<i>Introduction to FORM</i>
M. Worek (Wuppertal)	<i>Helicity amplitudes and HELAC/PHEGAS</i>