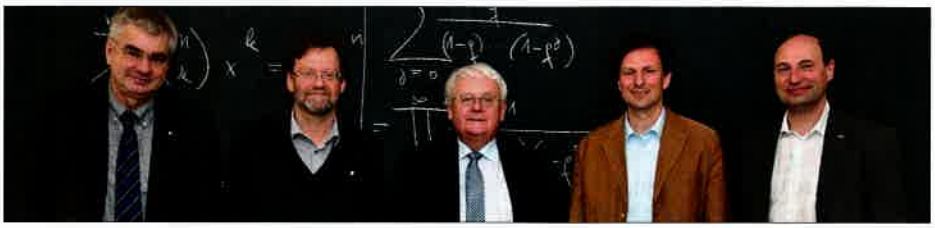
was the determination of the very first complete transverse-momentum-dependent parton distributions, which are valid over the full range of momentum accessible at the LHC. Progress has been reported in the region of very small longitudinal momenta, where saturation effects typically appear. New tools for transverse-momentum-dependent parton distributions (TMDs) were reported, including a complete library containing all publicly available TMDs and visualisation tools.

The REF workshop series, which started in 2014, is unique because it addresses questions from high-energy particle collisions together with issues coming from the non-perturbative structure of hadrons. These are very new and exciting attempts to describe in a uniform manner the low- and high-energy behaviour of particle collisions, which has much impact on the precision of LHC predictions. Although still a small community, the range of applications of TMD approaches cover the most interesting and important regions where resummation to all orders in perturbation theory is relevant, and which is the major focus of new and challenging Standard Model measurements at the LHC. The next edition of the REF workshop will be held in Madrid, Spain, from 13 to 17 November 2017.

Celebrating a decade of high-end computer algebra

Precision calculations of scattering processes at high-energy colliders such as the LHC rely on advances in computer algebra to process the enormous number of higher-loop Feynman integrals. For the past 10 years, the DESY theory group at Zeuthen has collaborated in this field with mathematicians from the Research Institute of Symbolic Computation (RISC) at Johannes Kepler University (JKU) in Linz. During the collaboration, various symbolic summation and integration packages, as well as those for related special functions, have been created. These are publically available and offer broad automation of analytic Feynman integral calculations for two- and three-loop integrals.

To mark the 10th anniversary of this successful partnership, a one-day workshop took place at Hagenberg Castle in Austria on 7 February, during which representatives of DESY and JKU extended their collaboration agreement for a further five years. The directors of research at Wolfram Research and MapleSoft also contributed reports on the latest versions of Mathematica and Maple, while special lectures were delivered about summation theory, elliptic solutions, precision calculations for the LHC and new developments in q-series.



C Koutschan

(From left to right) Joachim Mnich (DESY), Peter Paule (RISC), Johannes Blümlein (DESY), Carsten Schneider (RISC) and Alexander Egyed (JKU).

Correction

A photograph on p41 of the March issue shows Claude Trudelle, Québec delegate general for Germany, Austria and Switzerland, and not Rémi Quirion as stated in the caption.

Visits

S Bennett/CERN

Director-general of the United Nations Office, **Michael Møller**, visited CERN on 6 February with other heads of United Nations agencies, during which they toured the ATLAS cavern and visited the LHC tunnel.

S Bennett, CERN

Marie-Christine Marghem, Belgian minister for energy, environment and sustainable development, came to CERN on 20 February. Following a tour of CMS, she signed the guestbook with (left to right): CERN director for accelerators and technology Frédérick Bordry, Belgian ambassador to the UN Geert Muylle, CERN Director-General Fabiola Gianotti, and CERN director for research and computing Eckhard Elsen.

S Bennett/CERN

Ofir Akunis, minister of science, technology and space in Israel, visited CERN on 22 February, during which he toured ATLAS with former experiment spokesperson Peter Jenni (left).

M Brice/CERN

Edgars Rinkēvičs, minister of foreign affairs for the Republic of Latvia, came to CERN on 27 February and visited the CMS experiment. He signed the guestbook with CERN director for international relations Charlotte Warakaulle and non-Member State adviser Christoph Schaefer.