

Preface

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*Loops and Legs in Quantum Field Theory - LL 2014,
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The bi-annual international conference “Loops and Legs in Quantum Field Theory” has been held at Weimar, Germany, from April 27 to May 02, 2014. It has been the 12th conference of this series, started in 1992. The main focus of the conference are precision calculations of multi-loop and multi-leg processes in elementary particle physics for processes at present and future high-energy facilities within and beyond the Standard Model. At present many physics questions studied deal with processes at the LHC and future facilities like the ILC. A growing number of contributions deals with important developments in the field of computational technologies and algorithmic methods, including large-scale computer algebra, efficient methods to compute large numbers of Feynman diagrams, analytic summation and integration methods of various kinds, new related function spaces, precise numerical methods and Monte Carlo simulations.

The present conference has been attended by more than 110 participants from all over the world, presenting more than 75 contributions, most of which have been written up for these proceedings. The present volume demonstrates in an impressive way the enormous development of the field during the last few years, reaching the level of 5-loop calculations in QCD and a likewise impressive development in massive next-to-leading order and next-to-next-to-leading order processes. Computer algebraic and numerical calculations require terabyte storage and many CPU years, even after intense parallelization, to obtain state-of-the-art theoretical predictions.

The city of Weimar gave a suitable frame to the conference, with its rich history, especially in literature, music, arts, and architecture. Goethe, Schiller, Wieland, Herder, Bach and Liszt lived there and created many of their masterpieces. The many young participants signal that our field is prosperous and faces an exciting future.

The conference hotel “Kaiserin Augusta” offered a warm hospitality and excellent working conditions.

We would like to thank Martina Mende for all her work in helping to organize this conference. Details of the conference can be found under:

<https://indico.desy.de/conferenceDisplay.py?confId=8107>