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2015 European School of High-Energy Physics

Bansko, Bulgaria
2 – 15 September 2015

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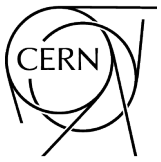
G. Zanderighi



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Abstract

The European School of High-Energy Physics is intended to give young physicists an introduction to the theoretical aspects of recent advances in elementary particle physics. These proceedings contain lecture notes on quantum field theory and the Electroweak Standard Model, Higgs physics, flavour physics and CP violation, theories 'behind' the Standard Model, heavy ion physics, and practical statistics for High Energy Physics.

Preface

The twenty-third event in the series of the European School of High-Energy Physics took place in Bansko, Bulgaria, from 2 to 15 September 2015. It was organized jointly by CERN, Geneva, Switzerland, and JINR, Dubna, Russia, with support from the Bulgarian Nuclear Regulatory Agency, St. Kliment Ohridski University of Sofia, and the Institute for Nuclear Research and Nuclear Energy of the Bulgarian Academy of Sciences. The local organization team was chaired by Prof. Roumen Tsenov who was greatly assisted by Mrs Gergana Mitkova on many administrative matters. The other members of the local committee were: P. Iaydjuev, I. Ilchev, L. Kostov, B. Pavlov, D. Tonev and G. Vankova-Kirilova.

A total of 92 students of 34 different nationalities attended the school, mainly from institutes in member states of CERN and/or JINR, but also some from other regions. The participants were generally students in experimental High-Energy Physics in the final years of work towards their PhDs.

The School was hosted at the St. Ivan Rilski hotel in Bansko, about 160 km to the south of Sofia. According to the tradition of the school, the students shared twin rooms mixing participants of different nationalities.

A total of 30 lectures were complemented by daily discussion sessions led by six discussion leaders. The students displayed their own research work in the form of posters in an evening session in the first week, and the posters stayed on display until the end of the School. The full scientific programme was arranged in the on-site conference facilities.

The School also included an element of outreach training, complementing the main scientific programme. This consisted of a two-part course from the Inside Edge media training company. In an after-dinner session, students had the opportunity to act out radio interviews under realistic conditions based on a hypothetical scenario.

The students from each discussion group subsequently carried out a collaborative project, preparing a talk on a physics-related topic at a level appropriate for a general audience. The talks were given by student representatives of each group in an evening session in the second week of the School. A jury, chaired by Svejina Dimitrova, Director of the Astronomic Observatory and Planetarium in Varna, judged and gave feedback on the presentations; other members of the jury were Andrea de Simone (lecturer at the School), Kate Ross (Schools Administrator), and Zornica Asanska and Klimentina Savova (high-school students who are studying physics at the Academician Kiril Popov Mathematical School in Plovdiv). We are very grateful to all of these people for their help.

Our thanks go to the local-organization team and, in particular, to Roumen Tsenov, for all of their work and assistance in preparing the School, on both scientific and practical matters, and for their presence throughout the event. Our thanks also go to the efficient and friendly hotel management and staff who assisted the School organizers and the participants in many ways.

Very great thanks are due to the lecturers and discussion leaders for their active participation in the School and for making the scientific programme so stimulating. The students, who in turn manifested their good spirits during two intense weeks, appreciated listening to and discussing with the teaching staff of world renown.

We would like to express our strong appreciation to Professor Rolf Heuer, Director General of CERN, and Professor Victor Matveev, Director of JINR, for their lectures on the scientific programmes of the two organizations and for discussing with the School participants. It is worth noting that Professor Heuer lectured at every European School of HEP during his seven-year mandate as Director General of CERN that ends in December 2015.

Our sincere thanks are also due to the following high-level visitors who participated in the opening ceremony of the School: Ms Genoveva Jecheva, Director, National Science Fund of the Ministry of Education and Science; Professor Latchesar Kostov, Chairman, Bulgarian Nuclear Regulatory Agency; and Professor Dimitar Tonev, Director, Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences.

In addition to the rich academic programme, the participants enjoyed numerous sports, leisure and cultural

activities in and around Bansko. Particularly noteworthy were the half-day excursion to the village of Dobursko, with its historic church and dancing grandmothers, and the town of Razlog, and the full-day excursion to the impressive Rila Monastery and the town of Blagoevgrad. Sports and leisure activities in and around the hotel, as well as the excursions, provided an excellent environment for informal interactions between staff and students.

We are very grateful to Kate Ross and Tatyana Donskova for their untiring efforts in the lengthy preparations for and the day-to-day operation of the School. Their continuous care of the participants and their needs during the School was highly appreciated.

The success of the School was to a large extent due to the students themselves. Their poster session was very well prepared and highly appreciated, their group projects were a huge success, and throughout the School they participated actively during the lectures, in the discussion sessions and in the different activities and excursions.

Nick Ellis
(On behalf of the Organizing Committee)

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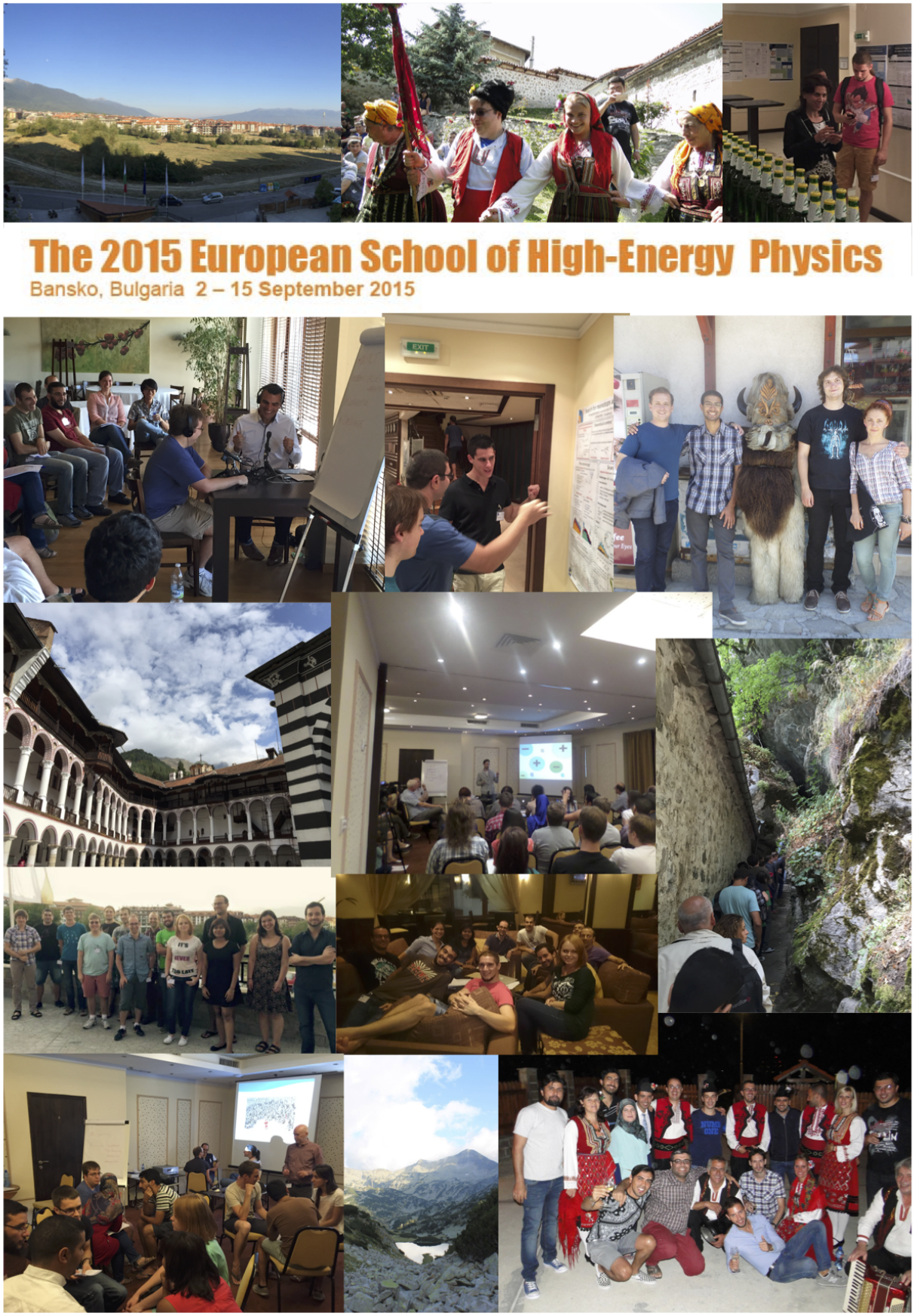


ST.IVAN RILSKI

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