

FOREWORD

The International Baikal Summer School on Physics of Elementary Particles and Astrophysics was held on July 3–10, 2011 at a small pictorial village Bolshie Koty situated at the Baikal lakeside. The School has been organized by Irkutsk State University and the Joint Institute for Nuclear Research (Dubna) every summer since 2004. In 2011 the School program included lecture courses on the Standard Model, perturbative and high energy density QCD, Flavor and Neutrino physics, Cosmology, Cosmic rays, Dark matter and dark energy plus talks on original studies and students reports. About 80 participants have attended the school this time.

Within this volume we continue publication of the School proceedings — a tradition started in 2009. We are sincerely grateful to most of our lecturers who found a time slot in their busy life to write their lectures for this volume. Also we are happy to publish several original contributions by researchers and young scientists. We hope that these lectures will be helpful to a wider auditorium than our School could host.

Many people must be thanked for contributing to the success of the School 2011. The International Advisory Committee was important in proposing topics and speakers for the Symposium and reviewing our selections. The Local Organizing Committee had solved a lot of logistic problems to make the School running smoothly in such a wild place as we had. We are also grateful to organizations which provided us with sponsorship: Irkutsk State University and personally to *Alexander Arguchintsev*; the Joint Institute for Nuclear Research and personally to *Alexander Olchevski*, *Dmitry Kazakov*, *Nikolai Russakovich*, *Yury Gornushkin*, *Dmitry Fursaev*, *Stanislav Pakulyak*, *Andrey Kulkov* and *Mikhail Katrasev*; the Russian Foundation for Basic Research; the Dynasty Foundation; and the Ministry of Education and Science of the Russian Federation.

The local organization was excellently carried out by *Irina Perevalova*. She was able to solve any problem that ever appeared in a fast and efficient way. We thank Irina for her excellent work which was crucial for the School. *Oleg Samoylov* patiently served as a scientific secretary of the School and his work included a lot of things from logistics to creation and maintaining the School web site. We are happy to thank him for his excellent work.

We thank *Vyacheslav Lee* for his help at various stages of the School organization.

Maxim Gonchar, *Elena Naumova*, *Svetlana Starikova*, *Svetlana Zemskova*, *Ilya Butorov*, *Oleg Samoylov*, *Anastasiya Bolshakova* and *Svetlana Biktemerova* helped us to prepare this large volume, and we are indebted to them for their help.

We are grateful to all the lecturers who found a time to fly over several thousands of kilometers to Siberia and made their great lectures. Finally, we would like to thank all the participants, especially young students who were eager to learn new things and discussed science along with other subjects till the very late at night.

We do hope that this was a pleasant and fruitful time for all of us and we seek for the future Schools!

A. N. Vall and *D. V. Naumov*
Chairmen of the Organizing Committee