

Preface

PHYSTAT2003 was a Conference held at SLAC on September 8th – 11th, 2003. Its theme was “Statistical Problems in Particle Physics, Astrophysics and Cosmology”. It followed on from the Confidence Limits Workshops held at CERN and Fermilab in 2000, and a conference in 2002 at the Institute for Particle Physics Phenomenology in Durham, UK. PHYSTAT2003 differed from the earlier meetings in two important respects. While the first three meetings had been attended largely by particle physicists, at SLAC there was also involvement of astrophysicists and cosmologists. Secondly, the SLAC meeting really benefited from a strong presence of statisticians. They enhanced the usefulness of the Conference in many ways: they were involved in the planning stage, gave invited and contributed talks, and were simply “there” to discuss statistical issues with physicists in the breaks between the sessions.

Because of the different disciplines of the participants, the Conference started with talks by Eric Feigelson and Roger Barlow, on astrophysics and particle physics respectively. These were to introduce members of the audience to the range of statistical issues that were actively being used in fields with which they were not directly acquainted. These were followed by the Keynote Address by Bradley Efron, President of the American Statistical Association. Invited talks at the conference were divided almost equally between statisticians and physicists, and there were 2 sets of parallel sessions for contributed talks. The meeting ended with a Panel Discussion dealing with questions submitted by attendees, and with John Rice’s Conference Summary.

Also included in these proceedings are articles by Sergei Bityukov, Sergei Redin, and Ercan Kuroglu who had registered for the conference, but were unable to attend because of problems in obtaining visas to visit the USA.

I would like to take this opportunity to thank many people. First and foremost I want to express my deep appreciation to SLAC Director, Jonathan Dorfan and to Research Director, Persis Drell. From the very beginning they were extremely positive about having PHYSTAT2003 at SLAC, and their spiritual and financial support were most important.

The Scientific Committee (listed on page 326.) was full of useful guidance in meetings that we had at SLAC, the CERN cafeteria and via e-mail. The smooth running of the conference was largely due to the efficient work of the Local Organizing Committee. Its Chairman Richard Mount did sterling work in smoothing over a whole range of potential difficulties. Among many other activities, Arla LeCount made sure that we all did the jobs we were supposed to, as well as bearing the brunt of the Conference’s e-mail enquiries. The very efficient setting up and maintenance of the web site was due to great work by David Lee. I am most grateful to all of them. Also, the friendly and effective help provided by Jane, Jennifer and Bernice at the Conference was very much appreciated.

The value of the Conference, to a large extent, was determined by the excellent quality of the speakers. We were all particularly grateful to the statisticians who devoted time and energy patiently explaining to us that we should be aware of books that have been written since the famous tome by Kendall and Stuart, that chi-squared

is not the only way of testing goodness of fit, etc., etc. My thanks extend to all the speakers of invited and contributed talks, especially for their efforts in making their material accessible to all members of the audience.

I hope that these proceedings will provide a useful record of most of the talks at the conference. Beck Reitmeyer of the SLAC Technical Publications Department was responsible for converting a random series of computer files into these Proceedings. She coped remarkably calmly with the elastic sequence of “final” deadlines, which were necessary to coax written text out of some of the speakers. She was ably helped by Yasuko Weyhrauch. I wish to thank members of the Scientific Committee who reviewed the articles appearing here. In some cases this involved active participation in the production of the final text.

Final thanks go to all participants at PHYSTAT2003 for keeping the speakers and Panel members on their toes, and for helping to make it a productive and interactive meeting. I hope that the next PHYSTAT meeting can build on the contacts and advances made at SLAC.

Louis Lyons