

## XXIst Brazilian National Meeting on Particles and Fields

### FOREWORD

The *Brazilian National Meetings on Particles and Fields* are a conference series held every year, under the sponsorship of the *Sociedade Brasileira de Física* (SBF), and supported by several Brazilian governmental agencies as well some foreign and private ones. The first of these meetings took place in *Cambuquira*, state of Minas Gerais, in 1979, gathering 94 participants, who shared their experiences in the field through the presentation of about 40 short oral talks and discussions.

After the initial years, the organization evolved markedly, so that nowadays the profile of the meeting can be considered as rather singular in the context of other scientific meetings, workshops and conferences. In fact, today it presents a complex structure, which includes review talks – both plenary and parallel – presented by Brazilian and foreign specialists, scientific communications both in oral and poster formats. Also, it includes round-table discussions on political, educational and social problems, homage ceremonies to well-known physicists with outstanding contributions to Brazilian Physics (the historical memory), and activities of scientific diffusion in the format of didactic seminars addressed to general audiences (mostly local high-school students).

Topics covered in the meeting include four main areas of interest – which have in fact been traditionally developed in the country since the effective beginning of Physics research in Brazil in the thirties – namely,

- Cosmology and Gravitation,
- Experimental High Energy Physics,
- Field Theory, and
- Particle Physics Phenomenology.

It should be stressed that many Brazilian researchers (and also a number of other Latin-Americans) find in these meetings the only opportunity of access to up-to-date information, and of an effective integration in the area. Moreover, for graduate students these meetings play an important role as a suitable school, specially with respect to the training in presentations and discussions in front of large audiences. For such reasons, the meetings are a fundamental contribution to the development of Particle Physics, in the region and beyond, and have proved to be good examples of the efficient use of the financial resources directed to research and education.

The XXI Brazilian National Meeting on Particles and Fields was held at the resort town of São Lourenço, Minas Gerais, from 23 to 27 October, 2000, with the following organization committee: Adriano Natale (UNESP), Álvaro Leonardi Ayala Filho (UFPEL), Fernando T. C. Brandt (USP), Gilvan Augusto Alves (CBPF), Henrique P. de Oliveira (UERJ), José Ademir Sales de Lima (UFRN), José Alexandre Nogueira (UFES), José Roberto Soares do Nascimento (UFPB), Leandro de Paula (UFRJ), Márcio José Menon (UNICAMP; Chairman). The organization received administrative assistance of the staff of the *Sociedade Brasileira de Física*: Edgard Gonçalves, Eliana Maria Alves, Fernando Luiz Braga, Neusa Maria Lucas, Roberto C. Pereira, Sueli M. de Almeida.

The meeting, gathering about 250 participants, consisted of 6 plenary talks, 12 parallel talks, 4 review sessions (one for each main area), and about 250 scientific communications (72 short oral talks plus about 180 posters). In addition to the specific scientific activities, a round table (in two parts), two homage sessions, a seminar for general audience, and a permanent panel session dedicated to historical retrospective, completed the schedule.

A novel feature of the scientific program was the emphasis given to the poster session, with a corresponding reduction to one half of the previous number of short oral presentations. The poster session itself was developed as a unique activity (without parallel program), concomitantly with a buffet service. The arrangement has proven to be an improvement in the efficiency of scientific interchanging, without limited time for discussions, questions, answers, comments. The selection of the 72 oral communications followed a criterion of quality of the work, care with the relative balance between the four areas, and the following priority for the order of the speakers: 1. post-doctors, 2. graduate students, 3. mini-reviews, 4. the others.

A further novel aspect of the scientific program has been the introduction of four review talks, which have been presented by Professors Ioaw Waga (Cosmology and Gravitation), João C. dos Anjos (Experimental High Energy Physics), Marcelo Gomes (Field Theory) and Erasmo M. Ferreira (Particle Physics Phenomenology). The basic goal of the reviews was to help people from different areas to make a better idea about the entire meeting.

One of the homage sessions celebrated the 80th anniversary of Prof. Jayme Tiomno, and had the special

participation of Professors Ivano Soares, José Ademir Sales de Lima, Marcelo Gomes and Sérgio Joffily. Together with the audience they shared their scientific and personal experiences with Professor Tiomno, and traced back the importance of his work in the development of Physics in Brazil. Another homage was dedicated to Prof. Erasmo M. Ferreira, in occasion of his 70th birthday. Professors Jayme Tiomno, José de Sá Borges Filho, Luiz Pinguelli Rosa and Zieli D. Thomé, participated in the session. Besides a retrospective about the scientific career of Professor Erasmo Ferreira, they stressed his human character, his active personality, and the permanent enthusiasm towards the development of Physics in Brazil. Both sessions have been recorded in film, a material certainly valuable as historical and educational documentation.

The round-table sessions were dedicated to the subject “Particles and Fields Physics and the Brazilian Scientific Policy”. They have been composed by researchers in the area of Particles and Fields who participated recently in the committees of the supporting agencies, Professors Carlos A. Aragão de Carvalho Filho (CLAF, CNPq), Carlos O. Escobar (CNPq), Oscar Éboli (SBF) and Ronald C. Shellard (CNPq). They debated during about three hours (two sessions) different aspects of the government policy concerning financial support to research in the country, and possible ways to optimize organization and effective integration of the area at a national level.

The special session devoted to scientific diffusion of the area turned out to be a great success. The seminar – “Searching for the Infinitely Small” – presented by Prof. João R. de Mello Neto, gathered an attendance of about 400 teen-aged or young students, and teachers, from six public and private schools of the *São Lourenço* region. The XXist Meeting also featured a permanent exposition of 20 posters illustrating the beginning of Physics research in São Paulo, including pictures and documents from the ‘*Gleb Wataghin*’ *Historic Archive* - USP.

The closing session took place at the main hall of the Primus Hotel, with a piano recital, poetry and prose, presented by Professors Fernando Miguel Pacheco Chaves (piano) and Eduardo Antônio Conde Garcia (poetry and prose), both from the Federal University of Sergipe. The recital covered works from the 18th century to present days, with a pursuit that art is an expression of the dreams and struggles of mankind, and stressing the human effort towards construction of a society based on freedom, equality and fraternity. After the concert a *churrasco* was shared by the participants at the Gymnasium.

Since the first meeting, the edition of the proceedings has been a marking characteristic of the series on Particles and Fields (as well as the efforts to maintain the publications). In this year, scientific communications (oral and poster), *not only from the XXist, but also from the XIXth and XXth events*, are being published all them in a compact disk (CD).

As it occurred for the first time in the last year, this special issue of the Brazilian Journal of Physics contains the invited talks. This volume, with 12 parallel and the 4 review talks, and 5 of the 6 plenary talks<sup>1</sup>, collects works covering fundamental areas of knowledge and will certainly be an important contribution to the scientific literature.

It is a grate pleasure to thank the invited speakers. They delivered excellent seminars. We also thank the chairpersons, the authors, the invited members of the various sessions (homages, round tables), and all the participants, for providing the fruitful atmosphere along the meeting and the real conditions for the scientific and political debate, and the critical discussion of ideas.

We gratefully acknowledge the financial support of the Brazilian agencies CAPES, CLAF, CNPq, FAPERJ, FAPERGS, FAPESP and FINEP. A special thank is directed to Prof. Amélia Império Hamburger, for the historical panels, and to Prof. Silvio Salinas, editor of the Brazilian Journal of Physics, for the present publication. We remain in permanent debt for the wonderful recital offered by Profs. Fernando M. P. Chaves and Eduardo A. Conde Garcia.

Finally, we thank the authors of the manuscripts printed in the present issue, and Ms. Neusa L. Martin, for her support in the final steps of the edition.

Márcio José Menon  
Leandro de Paula

Guest editors

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<sup>1</sup>Unfortunately one of the speakers could not send his contribution.



Figure 1. Celebration of the 80th birthday of Prof. Jayme Tiomno. From left to right: Sergio Joffily, Marcelo Gomes, Jayme Tiomno, Elisa Frota Pessoa, Ivano Soares, José Ademir Sales de Lima.



Figure 2. Celebration of the 70th birthday of Prof. Erasmo Ferreira. From left to right: Luiz Pinguelli Rosa, José de Sá Borges Filho, Zieli D. Thomé, Erasmo Ferreira, Jayme Tiomno, Márcio J. Menon.



Figure 3. Round Table: Particles and Fields Physics and the Brazilian Scientific Policy. From left to right: Ronald C. Shellard, Carlos A. Aragão de Carvalho Filho, Adriano Natale, Carlos O. Escobar, Oscar Éboli.



Figure 4. Poster session: partial view.