Remembrances on the origin of the Mexican School of Particles and Fields

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Abstract. The Mexican School of Particles and Fields was borne at a time when scientific communications in Mexico, specially with the first world community, were very slow and inefficient. Nowadays, after 22 years, the school is well attended every two years by students and young researchers from Mexico and Latin America. By introducing participants to the fast moving frontier of scientific developments in the area of high energy physics and astroparticle physics, the School has played an important role in fostering the career of young researchers working in these fields.

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The purpose of this note is to present our point of view regarding the origin, development and impact of the "Mexican School of Particles and Fields" (MSPF). The next school, to be held in Puerto Vallarta this year 2006, will be the twelfth edition, after 22 years of holding it every two years. Here we will be concerned with the schools number one (1984) to five (1992), which were organized by the authors, together with Matias Moreno from UNAM, of the present text. The rest, from the sixth onward, were organized by the Particle and Fields’ Division (P&FD) of the Mexican Physical Society (SMF), which was created in 1986 with the aim, among others, to promote the meetings of the community. In order to have a program defined by the institutions, and considering that the endorsement of an organization will facilitate the procurement of funds and the handling of financial resources, the authors delegated to the P&FD the responsibility of the organization of the MSPF.

Before entering into the subject it is important to set up the context. For this reason we start with a short summary of the situation in Mexico in those days. Necessarily this reflects a partial and very summarized view of the always changing reality. As poor as it may be, the view we present will allow the reader to have an idea on the reasons we had to create the School.

1982 was the last year of the administration of the Mexican President José López Portillo. López Portillo based his economical policy on the exploitation of petroleum, using to this end credits obtained abroad. Unfortunately the prices of petroleum went down

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causing serious problems, leading to a devaluation of the currency and the nationalization of the banks. All this traduced in cuts to the budget for Science and Technology and strong problems to get grants from the National Council for Science and Technology (CONACyT). From 1982 to 1988 the president of Mexico was Miguel de La Madrid. He received the country in a disastrous economical situation, worsened by the increment in the external debt and political and economic circumstances at world-wide level. The approach he used to face the problems was an austere economic policy. Towards the end of his six year period a new strong devaluation occurred affecting again all the Mexican society, in particular the academic community. The crisis still existed in 1988 when Carlos Salinas assumed the presidency of Mexico. The period 1988-1994 was characterized by NAFTA (Free Trade Agreement with USA and Canada), an improvement of the economy based on the selling of an important number of - until then - state owned enterprises and also, of course, by the uprising of the guerilla Zapatista. And again the Mexican currency was devaluated.

In summary, during the 1982-1994 period the economical and political crisis were recurrent. The academic community suffered not only shortage of economical resources, but mainly a strong uncertainty on the possibilities of development. The consequences of such a uncertainty was that important members of the community decided to leave the country producing thus further delay in the consolidation of the groups.

In the early 80’s the Mexican community of particle physicist was small, both in locations as well as in the number of professionals of the field. In fact the community was mostly concentrated in Mexico City at Cinvestav, IPN and UNAM, although a few bright people, then recently graduated, worked in three other cities: Leon, Morelia and Puebla. To have an idea of what we are saying, it is enough to say that none of the groups included more than five professional researchers. In contradistinction to the 70’s, the groups in the early 80’s were already formed by Mexican researchers, most of them graduated abroad.

Although nowadays information appears to be a granted gift, in the 80’s information was a serious problem so that subscription to journals was an absolute requirement to be aware of the developments of the field. Although we have to say that the "preprint" system worked pretty well, so that joining a place which was already in the lists of the main groups was an important advantage. Other sources of information were seminars and conferences. In northern countries it was normal to attend several week-long conferences containing talks by the most outstanding researchers. Also, graduate students had to select the schools and/or conferences that they would be able to attend each year. The normality in Mexico was quite different and thus, in the early 80’s, being well informed in Mexico was still a problem to be faced.

"The Mexican School of Particles and Fields" started as an effort to remediate that situation. The main problems that its organization faced were the smallness of the community and the diversity of topics of interests to be covered. Still, the attendance increased systematically every two years. Since the very beginning the school had an international scope, which at the beginning was reflected only in the invited speakers.
The first meeting involved 45 participants, all of them Mexicans [1]. The second school was attended by 52 persons, including students and researchers from non-Mexican institutions [2]. Ever since then the participation of Latin-American physicist has been a constant. It is not our purpose to describe the statistics of every school we organized, it is enough to say that at the peak, in this set of the first five schools, we reached an attendance of 60 participants, including physicists from Argentina, Brazil, Cuba, Colombia and Puerto Rico.

To set high standards we invited leaders in the HEP community to talk about physics we considered of interest, not only fashionable in the sense of being short term problems, but fundamental ideas that should be considered as long term research topics. A good example of this is the lectures by M.A.B. Bég on Higgs physics and Dynamical symmetry breaking, and D. Wyler lectures on neutrino masses. The subjects of the remaining lectures of the First Mexican school were composite models (H. Terazawa), supersymmetry and supergravity (B. Ovrut) and Hadron collider physics presented by D. Cline, who then held a position at CERN [1]. It was particularly important for us the participation of D. Cline since we were interested in promoting experimental high energy physics among the young Mexican graduate students. In retrospective, we can safely assert that the impact of the schools we organized was not minor, as seen from the list of invited speakers, the students they form and the long term collaborations that have arisen. Certainly, the merit is totally from the students, who were able to contact the leaders and stand out in a competitive medium.

The other four schools we organized were not different in concepts, i.e. always included speakers covering theory, phenomenology and experiments. The experimental physicist we invited were:

- L. Lederman (FERMILAB)
- D. Weneger (Institut für Physik, Universität Dortmund)
- J. Lach (FERMILAB)
- J. Bufler (FERMILAB)
- R.L. Dixon (FERMILAB)
- R. Raja (FERMILAB)

Among others, the following are theoretical topics covered in the first editions of the MSPF [2, 3, 4, 5]:

- Chiral perturbation theory
- Precision Tests of the Electroweak Theory
- Heavy Quark Physics
- Light Mesons Physics
- Chiral Perturbation Theory

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3 A worth recalling memory is the telegram by Leo Lederman who excused to attend the school due to a compromise to be in Stockholm.
At this point it should be stressed that the idea behind the MSPF was to gather together graduate students and researchers to spend a couple of weeks in an isolated but agreeable ambiance so that they could share experiences with invited speakers. At the same time faculty and graduate students had the opportunity to present advances of their work and to expose themselves both to the scrutiny of researchers of other latitudes as well as to compare their work with research with international standards.

As far as we can see, the following are areas where the MSPF had impact:

- Students came to Mexico to pursue graduated studies.
- Mexican students contacted first level researchers to pursue graduate studies abroad, both in theory and experiments. Among these, present leaders of recognized groups (Luis Villaseñor, G. Herrera, Hector Mendez Mella, Lorenzo Diaz, etc.)

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REFERENCES

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