Doing physics in India

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Pros and cons for applicants from abroad, and lessons from earlier experience.

As one who has spent roughly half his professional life in India and the other half in the United States, I would like to discuss briefly some issues of common interest regarding doing physics in India.

Let me begin by pointing out some of the attractions of doing physics in India:

(a) Physics research at an international level of quality is being done in India at a surprisingly large number of places. This is quantified in the book *Physics and Astronomy Research in India* published in 1990 by the American Chapter of the Indian Physics Association (contact: Dr N. Anantaraman, Cyclotron Laboratory, Michigan State University, East Lansing, MI 48824–1321, USA). Physics research in India is a tradition approximately one hundred years old.
(b) Funding of science research in India is very good, and stable; support has been becoming increasingly better over the past 20 years. The reasons for this are not clear but are probably as much cultural as technological/pragmatic. Stability of support means that long-term research plans are possible.
(c) The rewards in terms of personal satisfaction (for example the ability to make a difference) can be greater than in the USA. Many people have a strong sense of personal commitment and that gives them a sense of fulfilment when something is achieved.
(d) Salaries and fringe benefits are much better than they were even a few years ago.

At the same time, doing physics in India is very different from, and probably harder than, doing it in the USA, for the following reasons:

(a) Living is a struggle; the struggle takes different forms in different places.
(b) The infrastructure is not efficient; to make anything work needs more effort.
(c) It is a much smaller scientific community, so that local interaction is much less, collective stimulus is reduced, and one is more or less on one's own. This has both advantages and disadvantages. On the one hand, a researcher is his own master and free to follow his nose; but, on the other hand, there is the danger that he may become set in a particular groove and remain there undisturbed.

Moreover, there are usually serious problems in finding a place for doing physics in India.

(d) Most established institutions are near saturation.
(e) One must be prepared for a general lack of responsiveness from institutions, which is partly the result of uncertainty in the institutions' own time table and financial outlook.
(f) Selection of candidates is sometimes arbitrary, and there is often the absence of a well-defined time scale for processing applications.

Some applicants from abroad too have contributed to the problem by their lack of seriousness and by their unrealistic expectations. They have used Indian institutions as their last resort and, at the last minute, let them down. This sours the path for future applicants. I do not hold this against anybody because I believe that each person is entitled to find the best opportunity he or she can. But such exhibitions of bad faith do make it difficult for institutions to become enthusiastic about applicants from abroad.

With all these pros and cons about doing physics in India, a fact that is not often realized is that US-trained Indian physicists are still the largest source of high-quality research-level physics professionals in India. For those who are contemplating a return to India, I note that there is a real need of increasing the strength, vigour and quality of scientific activity in India. Further, the times are opportune in terms of general industrial/technological development.

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