

It is a great pleasure to take part in this celebration of the 5<sup>th</sup> anniversary of the establishing of ICTP South American Institute for Fundamental Research, and, more particularly to be able celebrate the remarkable achievements and progress already made by the Institute – achievements that I have been privileged to observe at close hand as chair of its Scientific Council, which provides advice to the Director and Steering Committee on the scientific program of the Institute.

We should all congratulate ICTP, FAPESP, UNESP, IFT and, in particular, Fernando Quevedo, Brito Cruse, Nathan Berkovits, Rogerio Rosenfeld, and their colleagues, for their vision, dedication and hard work.

In five years, the Institute has recruited internationally outstanding physicists to its faculty against world-wide competition; organized, in the last year alone, seven international graduate schools on diverse subjects, including mathematical biology, climate modeling, effective field theory, string theory, dark matter and plasma physics; and, in 2016, attracted as visitors to Sao Paolo about 240 scientists from around the world.

And that reminds that we should also congratulate the administrative staff, Jandira Oliveira, Nadia Roque, Lilia Faria, and Lucas Santos Sanches, because, especially at an institute in which so many visitors play a central role, they are an essential part of its success and conveying its ethos.

Through all this, and other programs and activities, the Institute has established a very high profile internationally and taken a place amongst the world's leading centers for theoretical physics and related disciplines. Let me assure you, if any assurance be needed, that this is a marvelous and remarkable achievement, as I can say from experience having been centrally involved in establishing the Newton Institute in Cambridge 25 years ago.

We were motivated to create the Newton Institute by our own experience of how important a role institutes like this have come to play in international scholarship and research. Probably, the first suggestion for establishing such an institute was made just a hundred years ago in *The Higher Learning in America*, a remarkable book written by the sociologist and economist, Thorstein Veblen, the man who coined the phrase “conspicuous consumption”.

In this prescient book, published in 1918, he proposed the “the installation of a freely endowed central establishment where teachers and students of all nationalities ... may pursue their chosen work”, and added “There should also be nothing to hinder the installation of more than one of these houses of *refuge and entertainment*”, which I have always thought a nice term for an international research institute.

Arguably, the first realization of Veblen's suggestion, perhaps partly inspired by it, was the Institute for Advanced Study in Princeton, where I now work, which was established in 1930. The founding Director of the Institute, Abraham Flexner, the person really responsible for its conception, articulated this as follows:

a haven where scholars and scientists [would not be] carried off in the maelstrom of the immediate; ... simple, comfortable, quiet without being monastic or remote; ... afraid of no issue; ... under no pressure from any side which might tend to force its scholars to be prejudiced either for or against any particular solution of the problems under study; ... it should provide the facilities, the tranquility, and the time requisite to fundamental inquiry into the unknown. Its scholars should enjoy complete intellectual liberty and be absolutely free from administrative responsibilities or concerns.

Thirty years on, the third Director of that Institute, Robert Oppenheimer, developed Flexner's argument:

With the increasing magnitude, complexity, and busyness of scientific progress in all fields, and with the growth of educational systems which corresponds to a new development in the world's history, university chairs no longer necessarily offer that opportunity for seclusion, and for the most difficult and intensive intellectual effort, which was once their special hallmark. For this reason, places of retreat, which are in effect places for advance, have been brought into being. These serve multiple functions, but basic to them all is an opportunity for much more intensive concentration on study and research than is elsewhere possible. ... For these reasons, ... institutes for advanced study ... will multiply throughout [the world].

Oppenheimer's prediction has proved correct. There are now hundreds of such institutes around the world, and they continue to be established at a high rate. I have had an opportunity to observe many of these at close quarters, as a member of advisory or visiting committees or governing boards. I truly have not seen another one that has achieved so much so quickly from a standing start as ICTP-SAIFR.

As David Gross emphasized yesterday, Nature is a lot more imaginative than we are. So it is vital that scientists are given opportunities to go where their curiosity leads them, following Nature's clues. In many countries, increasingly, funding agencies require research projects to have predetermined objectives with demonstrable short-term utility. It has been very refreshing to me to see how FAPESP has been willing to provide the resources for curiosity-driven research that have essential for the creation of this Institute.

The institutes that are successful achieve their success because they provide opportunities for academics to pursue curiosity-driven research away from the usual intense pressures of the modern university, and because they are international in the increasingly international world of academic research.

The success of SAIFR in this intensely competitive international environment is good for Sao Paolo, good for Brazil and good for South America, and very good for the whole international physics community.

Congratulations again on this remarkable beginning!