

The 80-th Anniversary of the Institute for Advanced Study

During September 24-25, 2010, my wife Mathura and I were guests of Professor Peter Goddard, Director of the Institute for Advanced Study in Princeton, for the 80-th Anniversary Celebrations of the Institute. It was a magnificent event.

The Institute which is abundant with world class faculty, was teeming with Nobel Laureates and Fields Medalists for this event. Some prominent participants/speakers were:

John Milnor* (1962 Fields Medalist) now at SUNY Stonybrook, formerly at IAS.

John Nash (Nobel Laureate) - Princeton University

Enrico Bombieri (1974 Fields Medalist) - von Neumann Professor at IAS

Jean Bourgain (Fields Medalist) - Institute for Advanced Study

Vladimir Voevodsky (Fields Medalist) - Institute for Advanced Study

Frank Wilcek (2004 Nobel Laureate in Physics) - MIT

Pierre Deligne (1978 Fields Medalist) - Emeritus at IAS

John Thompson (1970 Fields Medalist and 2008 Abel Laureate) - Emeritus at University of Florida and Cambridge University.

I almost felt that the concentration of intellect in the Institute lounge was so great that the earth might cave in under its sheer weight! It was a most exhilarating feeling to be in the midst of so many great minds and hear their thought provoking lectures. It brought back memories for me and Mathura of our stay at the Institute in 1981-82 when I was a Visiting Member.

I presented Professor Goddard with a copy of the book** on the legacy of my father that had just appeared, and he reciprocated by giving me two books, one on the early years of the Institute, and another on Dirac. I was then taken to the archives section and shown the file on my father Alladi Ramakrishnan that contained among other things the correspondence between my father and Robert Oppenheimer who was the Director of the Institute in the fifties when my father was a Visiting Member.

It was nostalgic for me to see the building where I had my office during my visit in 1981-82 (the same building where Enrico Bombieri, Harish-Chandra, Robert Langlands, and Armand Borel had their offices), and for Mathura and me to see 56 Einstein Drive, which was our apartment during that academic year.

I attended a good number of talks, not all, because there were parallel sessions. Milnor gave a commentary on the work of D'Arcy Thompson and discussed the role of conformal (and other) maps in understanding how bone structure may have evolved. Milnor had won the Fields Medal in 1962 for groundbreaking work in topology, but in recent years has been studying applications of mathematics to biology. Voevodsky, who is an algebraic geometer/topologist, spoke about the consistency of the foundations of mathematics. Bourgain's talk covered several areas of mathematics - number theory, representation theory, linear groups, analysis, ... Thus these giants presented a global view of the current state of mathematics and related areas. They were introduced by Peter Sarnak, Pierre Deligne, and Enrico Bombieri, respectively.

Mathura and I attended the Conference Banquet and were honored to be seated next to Professor Goddard, the Director, as his personal guests***. The speeches by Freeman Dyson and Robert Langlands at the banquet were most delightful. In giving a fantastic account of 80 years of the Institute, Dyson was critical that Oppenheimer concentrated too

much on particle physics. Dyson pointed out that it was at his instance that a program on astrophysics was started at the Institute with the appointment of Bengt Stromgren. Dyson had also suggested the great astrophysicist Subramanyam Chandrasekhar of the University of Chicago for a permanent appointment at the Institute, but Chandrasekhar was not interested in the offer, perhaps because he wanted to be close to Yerkes Observatory near Chicago for night sky observations. In retrospect, Dyson said that he felt it was better for Stromgren to be a Permanent Member at the Institute because Chandrasekhar was a “lone wolf” who preferred to work alone and so may not have blended with the culture of the Institute where Permanent Members spend considerable time interacting with the visitors.

Langlands in his speech noted that in the public eye the Institute is identified with Einstein (and consequently with physics) but really the Institute was built on the foundations laid by the School of Mathematics; indeed the School of Mathematics was the only school when the Institute was founded in 1930 and some of its early members (during 1930-60) were Einstein, Hermann Weyl, von Neumann, Godel, Oswald Veblen, Carl Ludwig Seigel, Andre Weil, Atle Selberg, Dyson, and others. Like Dyson, Langlands in his magnificent account of the history of the school of mathematics analyzed both the contributions and the personalities of some of these eminent mathematicians.

A visit to such a great seat of learning, and the lectures by the leaders of our profession, inspire us to excel in our work. Thus I came away from this visit with a satisfaction matched only by the stimulating experience I had during my stay at the Institute in 1981-82.

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March 2011

*Milnor will receive the 2011 Abel Prize

**”The legacy of Alladi Ramakrishnan in the mathematical sciences”, (K. Alladi, J. R. Klauder, C. R. Rao, Eds), Springer, New York (2010), 575 pages.

*** My contact with Goddard was through my father who had corresponded with him many times on scientific questions. After my father died, Professor Goddard asked me to write an Obituary on my father for the Institute Newsletter emphasizing how my father’s visit to the Institute in 1957-58 was the inspiration for him to conduct a Theoretical Physics Seminar at our home which led to the creation of MATSCIENCE, The Institute of Mathematical Sciences in Madras in 1962 with him as the Director. This Obituary appeared in the Institute Letter in Spring 2009. In view of this, Professor Goddard invited me to the 80th Anniversary of the Institute for Advanced Study in Fall 2010, a gracious gesture that is very much appreciated.

Note added in March 2018: Since writing this article, we note with sadness that Vladimir Voevodsky died in 2017. On a happy note, Robert Langlands was recognized this year with the Abel Prize for his revolutionary work connecting representation theory and automorphic forms to number theory and Galois theory.