

Dr. V C. Sahni

The 2nd Prof. B. M. Anand Memorial Lecture is being delivered by Dr. Vinod C. Sahni, who has served the Department Atomic Energy for over five decades. Born in 1945, he entered the Physics Department of Delhi University, as an "Entrance Scholarship" holder to pursue B. Sc. Honours in Physics. Thereafter he joined the 8th batch of BARC Training School in 1964 and topped his batch. He started his scientific career in 1965 as a staff member of Nuclear Physics Division (in the then Atomic Energy Establishment Trombay, later renamed BARC) and took up research in lattice dynamics working with Dr. G. Venkataraman. It led to their writing a book titled "Dynamics of Perfect Crystals", published by MIT Press, Cambridge, Mass., USA, in 1974 and earned Sahni his Ph. D in Physics in 1973 from Bombay University with Dr. P. K. Iyengar serving as his supervisor.

In 2000 Dr. Sahni was appointed Director, Physics Group, BARC. In this role he supervised R&D programs in condensed matter physics, nuclear physics, particle accelerators, atomic and molecular spectroscopy, astrophysics, advanced instrumentation etc.



Over the period 2003 to 2009 he concurrently served as Director, RRCAT, Indore and was instrumental in setting up India's biggest particle accelerator, Indus-2. This 2.5 GeV synchrotron radiation source is a major research facility of DAE. He also led the team that fulfilled DAE's commitments for the construction of World's biggest particle accelerator, the Large Hadron Collider at CERN in Geneva and laid the foundations for the DAE laboratories' collaboration with Fermilab USA. Till recently he held the DAE Homi Bhabha Chair Professorship at BARC.

Dr. Sahni is a INSA Young Scientist Awardee, a Fellow of the National Academy of Sciences and a recipient of M. M. Chugani Award of the Indian Physics Association for Excellence in Applied Physics and Chairman, Research Council, CSIR-CEERI, Pilani. In 2007, he received Homi Bhabha Medal from the then Prime Minister Dr. Manmohan Singh and in 2006 was given honorary D. Sc by Rani Durgawati University .

He has served as a Member of the Scientific Council of JINR, Dubna, Russia, Member of ICFA, Member ILC Steering Committee, Co-chair, DAE-CERN Joint Coordination Committee and as the President of the Indian Physics Association. He has also held the positions of a Senior Professor at Homi Bhabha National Institute, (a deemed University) and Honorary Professor at the Vellore Institute of Technology. He continues to assist several organizations in India and retains his research interest in areas relating to energy technologies, solid state physics, particle accelerators and their applications.

Programme

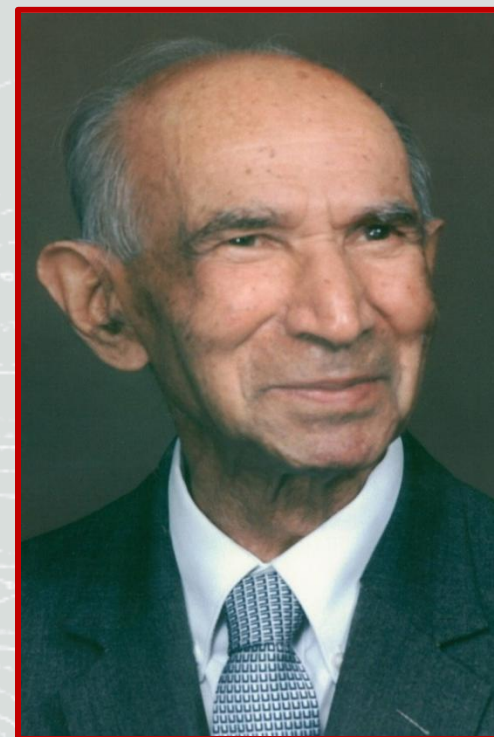
8th April 2016

10:45 am	Tea
11:00 am	PU Anthem
	Welcome Address by Chairperson
11:10 am	Address by Prof. Arun K. Grover, Vice Chancellor, Panjab University
11:25 am	2 nd Prof. B.M. Anand Memorial Lecture by Dr. V. C. Sahni
12:30 pm	Vote of Thanks

Organized by

Department of Physics
Panjab University

2nd Prof. B.M. Anand Memorial Lecture



Prof. Bal Mokand Anand
(30 Dec. 1905 - 6 Feb. 1998)

A Perspective on Physics-Society Linkages

by

Dr. V. C. Sahni

Prof. Bal Mokand Anand(30 Dec. 1905 - 6 Feb. 1998)

Prof. Bal Mokand Anand was history's choice for establishing Panjab University's Physics Department in its permanent campus at Chandigarh and initiating research activity there. He published original research in the 1930s and 1940s and had the distinction of working for his doctorate, in the 1950s, under the supervision of Professor Cecil Frank Powell who a few years previously (1947) had been awarded physics Nobel Prize for his discovery of a subatomic particle pion (or pi meson), using nuclear emulsion technique. Anand's 20-page research paper, based on his Ph. D. work, and published by the Royal Society, London, in 1953 is still considered relevant.

Bal Mokand was born in a village, Domel, in the Bannu district of what is now the Khyber Pakthunwa province of Pakistan. An only child who lost his mother at birth, he was raised by an aunt until the age of seven. With a view to be with his son and educating him, his father gave up his job as a travelling salesman, and moved to Peshawar where he opened a small grocery store, the back portion of which was improvised to serve as the family's modest living quarter.

Anand was a brilliant student whose studies were financed by scholarships. He passed his Matriculation Examination from Frontier High School, Peshawar, in 1922. A highlight of his school days was his playing the disguised Portia character in Shakespeare's Merchant of Venice. For his role in the play, Anand got a special suit stitched for him. This was the first time, he was wearing a suit. He passed his F.Sc. with Biology from Dayanand Anglo-Vedic College, Lahore, in 1924. He would have liked to become a doctor, but the attraction of a two-year scholarship brought him to basic science. He passed his B.Sc. with Honours in Physics from Government College, Lahore, in 1926; and M.Sc. in 1928, from Panjab University. He was mentored by two eminent faculty members: J. B. Seth of Indian Education Service, and Partap Kishan Kichlu. During 1928-1930, Anand worked at Government College, Lahore, on a Panjab University research scholarship, whereas the next two years, 1932-1934, were spent at the Irrigation Research Institute, Lahore, as a Research Assistant. Both these temporary appointments were marked by good-quality research output, including publications in the well-respected journal, *Nature*, and *Soil Science* (U.S.A). In 1934, when Panjab University introduced Honours School in Physics, Anand was appointed a Lecturer. He was promoted to Readership in June 1947.

East Panjab University (renamed Panjab University on 26 January 1950) came into existence on 1 October 1947. For two years, the Physics (as well as the Chemistry) Department was housed in Delhi University. The Department started operating from Government College, Hoshiarpur, on 15 May 1949. In August 1949, Anand was appointed Head of the (teaching) Department, while Dr H. R. Sarna was made the Director of Physics Laboratories. From December 1950 till July 1953, Anand was on study leave to avail of a Government of India scholarship to work for his Ph.D. He was made Professor in March, 1955.

Physics Department moved to Chandigarh on 15 September 1958 and finally to its own building in 1960. In Hoshiarpur itself, Anand had set up a nuclear emulsion laboratory with grants from the Union Ministry of Education and University Grants Commission. Now, thanks to grants from various agencies, including Department of Atomic Energy, and the US Wheat Loan Programme, research facilities were strengthened in nuclear emulsions, spectroscopy and nuclear physics. Two Ph. D. theses were written under Prof. Anand's supervision: Prem Kumar Aditya (1961) and Prakash Mohan Sood (1967). Aditya's is the first Physics Ph.D. from (the post-1947) Panjab University. If the Panjab University Physics Department today enjoys a world-class reputation, its roots go back to the Anand era. Professor Anand retired from the University on 20 September 1967.

(Rajesh Kochhar)



B. M. Anand (far left) with colleagues at Bristol University, England, 1952.

From Nuclear Emulsions to Collider Experiments

Prof. Anand established the nuclear emulsion laboratory for research in the field of Particle Physics. The lab was equipped with a world class Koristka microscope. To strengthen the research activities in this field, Dr. I. S. Mitra, a post-doc from Brookhaven National Laboratory was inducted as a faculty member in the department. Prof. B. M. Anand also appointed a number of qualified faculties in the fields of nuclear physics and solid state physics. The particle physics research using nuclear emulsion technique was vigorously pursued by a number of faculty members (Prof. P. M. Sood, Prof. V. S. Bhatia, Prof. J. M. Kohli, Prof. Suman Bala, Prof. J. B. Singh, Prof. Manjit Kaur and Prof. M. M. Aggarwal) until 1990. The research work using Bubble Chamber for particle detection was carried out in parallel. This platform gave opportunity to the faculty members and research scholars to participate in the frontline collider beam experiments as part of the national and international collaborations. The High Energy Physics (HEP) group has expanded further with Dr. Vipin Bhatnagar joining in 2000 and Dr. Lokesh Kumar in 2014. The HEP group is involved in experiments at various international accelerator centers such as Joint Institute of Nuclear Research (JINR), USSR; Fermi national accelerator laboratory (Fermilab), USA; European center for nuclear and particle research (CERN), Switzerland; Brookhaven National laboratory (BNL), US; High Energy Accelerator Research Organization (KEK), Japan and Hadron-Electron Ring Accelerator (HERA), Germany. Faculty and research students from this department participated in the discoveries of top quark, Quark-Gluon Plasma and Higgs Boson. The HEP groups have established detector hardware laboratories which are currently fabricating detector parts for the international experiments such as the Large Hadron Collider (LHC). The group is also actively participating in the national project - India based Neutrino Observatory (INO) both in detector fabrication and neutrino physics studies. The HEP group of this department is now well recognized nationally and internationally.

Panjab University has set up Prof. B. M. Anand Memorial Endowment Fund from the donation by Prof. Anand's family and initiated an annual lecture series to commemorate Prof. B. M. Anand.