

ABOUT THE SPEAKER



Ramamurti Rajaraman (born March 11, 1939) is an Emeritus Professor of Theoretical Physics at the School of Physical Sciences at Jawaharlal Nehru University (JNU). He completed his PhD in theoretical physics in 1963 from Cornell University with the Nobel Laureate Prof. Hans Bethe as his supervisor. He has since worked at Cornell, the Institute for Advanced Study at Princeton, Delhi University, the Indian Institute of Science and JNU. In addition he has spent sabbaticals at Harvard, Stanford, MIT and CERN, and undertaken numerous visits to Princeton University. His physics research areas include nuclear many-body theory, particle physics, quantum field theory, Solitons, and Quantum Hall systems. He has been awarded the SS Bhatnagar Prize and INSA's S.N. Bose Medal and elected a Fellow of IASc and INSA.

In addition he has worked extensively on nuclear disarmament and nuclear energy and contributed to public debates through articles and lectures. He has been awarded the 2014 Leo Szilard Prize by the American Physical Society for his work on nuclear policy.

He has been a Vice President of INSA, a founding member and past Co-chair of the International Panel on Fissile materials, a Member of the Science and Security Board of the Bulletin of Atomic Scientists, of the Asia Pacific Leadership Network and of the Council of the International Pugwash Conferences on Science and World Affairs.

Professor Rajaraman has written numerous articles on higher education, nuclear energy and disarmament. Some of the books and articles published by him are: (i) Solitons and Instantons: An Introduction To Solitons And Instantons In Quantum Field Theory, (ii) Three-Body Problem in Nuclear Matter, (iii) Three-Nucleon Clusters in Nuclear Matter and (iv) India's Nuclear Energy Programme : Future Plans, Prospects and Concerns.

Saha Institute of Nuclear Physics Alumni Association

cordially invites you to attend the

MANOJKANTI BANERJEE MEMORIAL LECTURE

The Interior of a Pulsar and issues of Elementarity

by

Professor R. Rajaraman

Emeritus Professor of Theoretical Physics,
Jawaharlal Nehru University, New Delhi

to be held at

Meghnad Saha Auditorium

Saha Institute of Nuclear Physics, Kolkata

at 3 p.m.

September 28, 2018

SINP Alumni Association (SINPAA)

SINP, Kolkata



Professor Manojkanti Banerjee
Born : 25 May, 1930 ; Died : 18 February, 2006

Manojkanti Banerjee was a brilliant theoretical nuclear physicist, a great teacher and an intellectual leader. After graduating from Patna University, he completed his Master's degree in Physics in 1951 from Calcutta University with a blazing track record. Soon after (1952) he was recruited as a Lecturer in the newly founded Institute of Nuclear Physics by Professor M. N. Saha which later became the Saha Institute of Nuclear Physics. Few trained nuclear physicists were working in the country in those early days. Young Manoj learned the subject all by himself and taught the same in the just-founded Post-M.Sc. course, the only such course in India then at the Institute of Nuclear Physics. Within a few years, he established himself as one of the finest nuclear physicists. He was one of the few early pioneers in theoretical research in Nuclear Physics in India; with students and like-minded colleagues whom he attracted, he created a vibrant research group in Saha Institute on Nuclear Many-body problem based on the Brueckner theory, Nuclear Reactions and Nuclear Structure. It was easily the finest nuclear theory group east of Moscow and west of Tokyo, comparable to the best anywhere.

A peripatetic young researcher, restless to seek the unknown, Manoj left India in 1966 to join the University of Maryland at College Park as a Professor in Physics. His interest moved to meson-nucleon interaction; his lasting contribution in that field lies in developing the Chiral Confining Model for the nucleon which dynamically generates the confining bag.

Professor Manoj Banerjee was awarded the senior Alexander Von Humboldt prize for his contribution to physics. He was a fellow of the American Physical Society, a fellow of the Indian Academy of Sciences and was in the editorial board of Physics Letters. He retired from the University of Maryland in 2001 but continued his association with the University as a Senior Research Scientist and Professor Emeritus. Though stationed abroad, he was always in touch with Saha Institute. In 1981, he was requested to return to Saha Institute as Director, but he politely declined the offer as he did not want excessive administrative burden at the cost of serious scientific research. Administrative glory mattered little to him; he was a true seeker as his friend and colleague Jim Griffin said of him, "for him, new truth was the ultimate treasure, he was deeply, even intrinsically a scholar".

THE INTERIOR OF A PULSAR AND ISSUES OF ELEMENTARITY

ABSTRACT

This talk is designed, not for Pulsar experts, but for a heterogeneous audience of scientists.

We will begin with an introduction to Pulsars (nickname for Pulsating Sources of Radio) — We will cover their discovery, their creation during stellar collapse consistent with the famous Chandrasekhar Limit, their characteristics and the reason why they "pulse".

It will be shown that the Pulsar is just one big giant nucleus. By providing a physical realisation of an almost infinitely large nucleus, Pulsar interiors gave a whole new laboratory for testing and extending the theory of nuclear matter. In this talk we will analyse what is in the interior of Pulsars and elucidate why they are called "Neutron Stars". This discussion will raise important conceptual questions of how to distinguish between "elementary" particles and composites. We will try to bring out these fascinating issues at a qualitative level.

Proper resolution of these questions really requires a fairly complex theoretical formalism in order to treat the quantum statistical mechanics of a dense system of hadrons. But we will avoid going into that formalism and merely make the final results plausible using just simple quantum mechanics, the Pauli Principle and nuclear basics.

PROGRAMME

Welcome Address

Professor Rabi Majumdar

President, SINPAA

Address by Guest of Honour

Professor Ajit Kr. Mohanty

Director, SINP

M K Banerjee Memorial Lecture

Professor R. Rajaraman

Presentation of Memento

President, SINPAA

Manojkanti Banerjee Memorial Lecture

————— September 28, 2018 at 3:00 pm —————

From
Saha Institute of Nuclear Physics Alumni Association (SINPAA)
Saha Institute of Nuclear Physics
Kolkata”