Prof M. Sai Baba
Visiting Professor
National Institute of Advanced Studies
Indian Institute of Advanced Studies campus
Bengaluru 560012
msaibaba@nias.res.in msaibaba@outlook.com
contact number: 9443329632
Date of Birth: July 25 1957.
LinkedIn ID: www.linkedin.com/in/msaibaba/
YouTube Channel: https://youtube.com/@msbmusings

Prof M. Sai Baba comes with extensive experience working in diverse institutes, a premier research institute (Indira Gandhi Centre for Atomic Research (IGCAR), Department of Atomic Energy (DAE)), a premier think tank organisation (National Institute of Advanced Studies, NIAS, Bengaluru) and a relatively young university (Ramaiah University of Applied Sciences, RUAS, Bengaluru) run by a foundation with more than 60 years of experience.

Prof. M. Sai Baba is an Outstanding Scientist and former Director of the Resources Management Group, IGCAR, Kalpakkam. He was a Senior Professor at Homi Bhabha National Institute (HBNI), Dean of Student Affairs, and coordinating Dean of HBNI at IGCAR. Held the "TV Raman Pai Chair Professor" position at the NIAS, where he is currently a visiting professor. He was with Ramaiah University of Applied Sciences, Bengaluru, and held the position of Registrar of the University. He was the Director of the Centre for Professional Development and Training, a new initiative of the university. He was also a professor at the University School of Social Sciences.

Prof Sai Baba is an accomplished researcher, scientific administrator, and institutional builder. He has significantly contributed to implementing several high-impact activities relevant to the IGCAR and the DAE. He has contributed to diverse domains: Human Resource Development, Access to Scientific Information Resources, Financial Management, Workflow automation to move towards a paperless office, Technology Transfer, and Intellectual Property Rights. One of his significant contributions has been establishing the BARC Training School at IGCAR and steering the Training School programs until his superannuation. Played an important role in streamlining the processes of HBNI from its beginning. Held several key positions at HBNI.

In recent years, he has been interacting with faculty and management students and has delivered talks on diverse topics, including the startup ecosystem, technology, and innovation.

At Ramaiah University, he has contributed to several initiatives and activities.

a. While he was Registrar, he played his administrator role effectively and streamlined several processes. Served as a member secretary of governing bodies like the Academic Council, Board of Management, Board of Governors, and Finance Committee. Contributed to diverse activities, including recruitment, comprehensive appraisals, and seed money funding for research, purchase, and finance. Contributed to the implementation of NEP at the University. Played an important role in getting approvals for starting new academic programs (Law and Social Sciences) at the university and bringing medical, nursing and physiotherapy under the ambit of the university. Played a lead role in strategising for enhanced admissions. Became well-versed in all aspects of the admission cycle. Participated in several discussions relating to higher education.
b. As Director of the Centre for Professional Development & Training, initiated the implementation of various training and professional development programs for faculty members. It was a newly created centre at the university, and he focused on identifying the requirements of different faculty members to enhance their performance. Organised two 30-hour training programs for faculty and one for the university's non-teaching employees.

c. He was also a professor at the School of Social Sciences. Contributed to the domains of Public Policy and Science Communication. Taught the course "Science, Technology and Innovation Policy" for MA Public Policy students. One of the master's students did his final semester dissertation under his guidance.

At the National Institute of Advanced Studies (NIAS), Prof Sai Baba is working in the domains of Science and Risk Communication, Human Reliability Program, and Understanding Ancient Indian Knowledge Systems for applying them to the holistic development of youth. Currently working on a collaborative project with Oak Ridge National Laboratory on Nuclear Safety and Security.

Science and Risk Communication: Obtaining effective and informative insights on managing public perceptions and acceptance of risks associated with new and emerging technologies through science and technology communications.

As part of this first-of-its-kind work on ascertaining the public perception of artificial intelligence, one of the emerging technologies. Came out with a NIAS report.

Human Reliability Program: Initiated a collaborative research program with Texas A&M University, USA, focusing on understanding the Human Reliability issues across industries of national importance. Methodologies are used for human reliability assessment and to identify good practices in safety and security across the domains to find commonalities across industries.

The discussions led to the publication of an edited volume by Springer. One Journal paper and one NAIS report have been published.

Understanding Ancient Indian Knowledge Systems for Applying Them to the Holistic Development of Youth: The research focuses on tracing, identifying and redefining ancient knowledge systems to correlate with modern sciences. Arrive at plausible solutions from the ancient Indian knowledge system for the holistic development of children for their physical, mental and spiritual well-being. Suggest methods of implementation. Exploring the funding avenues for carrying out further work.

The discussions led to the publication of an edited volume by NIAS.

Organising Discussion Meetings: Initiated and organised discussion meetings on important themes impacting society. Some of them are "Artificial Intelligence", "Kerala and Kodagu Floods", and "Ancient Indian Knowledge Systems for the Holistic Development of Youth". All these meetings focus on identifying essential aspects and raising awareness among stakeholders and the public.

Brief Summary of the research work done while at Indira Gandhi Centre for Atomic Research:

I. High-Temperature Chemistry and Thermodynamics:

A. A key member of the team that established and nurtured the research in mass spectrometry at the Chemistry Group (IGCAR) to international acclaim.

a) **Thermodynamic Studies on understanding Fuel-clad interactions in fast reactors**: Conducted extensive thermo-chemical investigations and modelling to assess fission product tellurium-induced clad attack in fast breeder reactors.

The work resulted in a large number of journal publications.

As part of research at the Research Centre, Julich worked on the vaporisation and thermodynamic behaviour of silicate glasses and Ni-Aluminium-based ternary alloys.

The work on silicate glasses led to the identification of the problems faced by the Industry in Germany.

b) **Thermogravimetry-based Transpiration Studies:** Established a new experimental programme for measuring equilibrium vapour pressures using the transpiration method based on Thermogravimetry.

Contribution to establishing a new method for thermodynamic measurements.

c) **Thermal Ionisation Mass Spectrometry:** Standardising methods for the analysis of nuclear fuel solutions irradiated in a nuclear reactor to determine burn-up (a measure of how much energy has been extracted from a nuclear fuel in a nuclear reactor), nuclear material input accountability and fission gas analysis of fast reactor fuels.

The measurements are crucial for the nuclear industry.

d) **Thermodynamic and Mass Spectrometric Studies on Fullerenes:**

Carried out work on Fullerenes. The work involved the ionisation and fragmentation behaviour of fullerenes. Partial pressures of fullerenes and electron impact ionisation cross section of Buckminsterfullerene molecule (C_{60}) and C_{70} were reported for the first time.

This work is of fundamental importance and paved the way for a better understanding of the behaviour of fullerenes.

e) **Modelling of Fuel Behaviour:**

Formulated a new computational model to predict the carbon-to-metal ratio (C/M) as a function of burn-up, applicable to mixed carbide fuels with high plutonium content.

This work was crucial in taking the Fast Breeder Test Reactor (FBTR) fuel at IGCAR, Kalpakkam, to higher burn-ups. Four confidential reports brought out are on this work.

B. Research work carried out in Germany and the USA.

At Research Centre Julich, Germany

Thermodynamic Studies Glasses and alloys: As part of research at the Research Centre, Julich worked on the vaporisation and thermodynamic behaviour of silicate glasses and Ni-Aluminium-based ternary alloys.

The work on silicate glasses led to the identification of the problems faced by the Industry in Germany.

At Texas A&M University, College Station, Texas, USA

High-Temperature Chemistry: Carried out high-temperature chemistry research to determine the thermodynamic stability of the molecules in the vapour phase. Some molecules studied include B_2N, Germanium clusters, and Germanium Carbide clusters.

This work is of fundamental interest. The molecule B_2N was detected for the first time, and its stability was assessed.

II. Research and Development work in the domain of Information Science:

Efforts were concentrated on providing access to Scientific Information Resources with considerable ease, catering to the varied needs of researchers and a large community of students. Using innovative and advanced information technology principles, continuously worked to enhance access to information resources at IGCAR. Taken the lead in creating infrastructure for digital content creation and converting print to digital. One of the crucial digital initiatives is the creation of "Subject-specific gateways", which make access to Information on a particular topic easy for patrons by bringing all relevant information in one place.

Access to Information in the digital era is a challenge all information resource centres must encounter, and our work reflects the progress made.

Five students obtained their PhD under his guidance. Currently guiding one student as co-guide. Two students have done their MTech under his guidance. Co-authored 65 Journal publications, 179 papers in symposiums/conferences and four confidential reports. Authored 11 chapters in Books/Proceedings. Edited nine Books/Periodicals. Delivered several invited talks (more than 250) on diverse topics. Chaired several sessions and panel discussions. Google Scholar has an H-index of 22, an i10 index of 39, and more than 1200 citations. On Research Gate, his articles have more than 1.56 lakh reads and 983 citations (https://www.researchgate.net/profile/Sai-Baba-Magapu). Won several awards, including the **Doctor of Science (Honoris Causa) conferred** by Dr MGR University, Education and Research Institute and the **DAE Group Achievement Award.** Several of his papers have won best paper awards.

Information in some detail is given below.

Prof M. Sai Baba

Information in some detail

Education:

- Master's degree in Chemistry from Andhra University (1977-79)
  Winner of Prof. Nil Rathan Dhar Prize in Physical Chemistry.
- Doctoral Degree from the University of Madras
  (PhD work at Indira Gandhi Centre for Atomic Research, Department of Atomic Energy, Kalpakkam).
- Post-doctoral work at:
  (i) Texas A&M University, College Station, Texas, USA (1996-1997)
  (ii) Research Centre, Julich, Germany (1997-1998)

Teaching Experience:

- Associate Professor, Professor and Senior Professor, Homi Bhabha National Institute (2006-2017)
- Principal Scientist, Energy Program, School of Natural Sciences, National Institute of Advanced Studies (2017-2018)
- Shri TV Raman Pai Chair Professor, National Institute of Advanced Studies (2018-2020)
- Professor at Ramaiah University of Applied Sciences (2020 to 2023)
- Visiting Professor, National Institute of Advanced Studies (January 2020 to present)

Academic and Administrative Positions:

Current:

- External Research Recognition Committee (RRC) member of the School of Sustainability Studies, Department of Public Health, MIT-World Peace University, Pune, Maharashtra, India.
- Member GINSERV's Incubator Seed Management Committee (ISMC). The committee evaluates Startup Seed fund applications under the Startup India Seed Fund Scheme.
- A reviewer of the projects submitted to DST under the SATYAM scheme.
- Reviewer of AWSAR: Expert for evaluating the articles submitted to DST's science communication initiative 'Augmenting Writing Skills for Articulating Research (AWSAR)' by PhD Scholars and Post-Doctoral Fellows for the AWSAR Prize.
- Member of the Editorial and Scientific Committee of the International Journal of Nuclear Knowledge Management, published by Inder Science Publishers (WONUC)
- Member of the Advisory Board, Governing Council of Hindustan Institute of Maritime Training Group of Educational Institutions, Chennai, Run under the Shri Krishna Educational Trust, Madhulika Educational and Charitable Trust, HIMT College Trust & HIMT Offshore

Positions Held

- Professor and Director, Centre for Professional Development and Training, Ramaiah University of Applied Sciences, Bengaluru.
- Registrar, Ramaiah University of Applied Sciences, Bengaluru.
- Member of NEP task force, Ramaiah University of Applied Sciences, Bengaluru.
- Chairman of the Committee formed to assess and optimise the human resource requirements of the non-teaching and administrative workforce at Ramaiah University of Applied Sciences, Bengaluru.
- "Shri TV Raman Pai Chair Professor" at the National Institute of Advanced Studies, Bengaluru.

- Member of a high-level S&T Institutional & Human Capacity Building committee, constituted by DST, Government of India.
- Member of the Committee of Experts constituted by DST to review research activities of the policy research centres, suggested some new initiatives/modalities, and discussed further strengthening and making future roadmaps in the country's STI sector.
- Member of the Expert Committee, UGC- SERO, Hyderabad, Constituted by UGC, Government of India.
- Member, Elsevier Advisory Panel.
- Member of the Editorial Board of "Frontiers in Science Technology and Application (FSTA)
- Member, Journal Advisory Board (JAB) of "Frontiers in Science Technology and Application (FSTA)
- Adjunct Professor: PSG College of Technology, Coimbatore and Amrita University, Coimbatore.
- Adjunct Professor: Amrita University, Coimbatore.
- Member of the Executive Council of the Academy of Sciences, Chennai.
- Served as Chairman of the Expert Committee, which was constituted by the Secretary of DST, to review the "Gamma Radiation Plant for Medical Device Reprocessing in Hospitals" project.
- Member, Focus Group on the Word Institute of Nuclear Security (WINS) Academy Training Course for STE.
- Member, Working Group on "Science Communication Policy: Focus Karnataka".
- Board of Studies of School in Physical & Nuclear Chemistry and Chemical Oceanography, Andhra University.
- Board of Studies of Library and Information Sciences, University of Madras.

At Indira Gandhi Centre for Atomic Research, DAE (Kalpakkam)

- Director, Resources Management Group, IGCAR
- Head, Strategic Planning and Human Resources Division
- Head, Scientific Information Resources Division
- Head, BARC Training School at IGCAR
- Senior Professor, HBNI
- Dean (Student Affairs) of HBNI at IGCAR
- Coordinating Dean of HBNI at IGCAR
- Official Spokesperson of IGCAR
- Member to coordinate NIRF and NAAC for HBNI at IGCAR
- Participated in Indo-French, Indo-Japanese, Indo-US and Indo-Russian collaboration and coordinated the discussions at IGCAR
- Coordinated DAE-IAEA collaboration projects at IGCAR

Work at Institutes Outside of India

- Visiting Scholar at Centre for Nuclear Security Science and Policy Studies, Texas A&M University, Texas, USA, April to May 2023.
- Visiting Scientist at Research Centre, Julich, Germany in 2000
- Post-doctoral work at:
  (i) Texas A&M University, College Station, Texas, USA (1996-1997)
  (ii) Research Centre, Julich, Germany (1997-1998)
- Visiting Scientist at Nuclear Research Centre (KFA), Julich, Germany 1988-1989, under Indo-German Bilateral Collaboration (1988-1989).

Scientific Contributions:

- A key member of the High-Temperature Chemistry Research
- A key team member who established and nurtured the research in mass spectrometry at Chemistry Group, IGCAR, to international acclaim.
- Established a new experimental programme to measure equilibrium vapour pressures by transpiration method based on Thermogravimetry at IGCAR.
- Research work on Fullerenes was highly appreciated. First, to report the partial pressures of fullerenes and electron impact ionisation cross-section of Buckminster fullerenes (C_{60} and C_{70}).
- Formulated a new computational model crucial to obtaining safety clearances for taking the high plutonium fuel of the Fast Breeder Test Reactor to higher burn-ups.
- Member secretary of the Taskforce on "Fuel Specifications" for Fast Breeder Test Reactor (FBTR) and Prototype Fast Breeder Reactor (PFBR).

Research Supervisor:

As a Research Supervisor under his guidance:

- Five students have obtained their PhD from HBNI.
- Served as a co-guide for one PhD student from HBNI.
- Two students have completed their MTech from HBNI.
- Co-guide to one student pursuing their PhD at Ramaiah University of Applied Sciences.
- Guides several interns for their final semester/year's project work.

Management Contributions:

- Served as a member of all the decision-making bodies of the Indira Gandhi Centre for Atomic Research, which included:
  (i) the Scientific Committee of Indira Gandhi Centre (IGCSC),
  (ii) Directors Advisory Committee (DAC),
  (iii) Stores & Purchase Committee (SPC),
  (iv) Indira Gandhi Centre Council (IGC Council) (the highest governing body of the Centre).
- Served as a member of the Kalpakkam Management Committee
  (The governing body is responsible for all the activities at townships at Kalpakkam and Anupuram.)
- Served as a member of the Management Committee of the General Services Organisation, Kalpakkam
  (responsible for construction and maintenance of the Kalpakkam and Anupuram Townships and managing the hospitals).
- Served as a member of the Hospital Advisory Committee for hospitals at Kalpakkam.
- Served as a member of some of the Specialist Groups constituted by the Secretary, DAE, to assess and evaluate the new capital projects of all the DAE units.
- Led the group that contributed towards formulating the capital projects for getting funds under the five-year plan projects (XI and XII). Monitoring physical and financial progress and providing input to various monitoring agencies are two of the crucial assignments executed by his group under his leadership.

- One of the key persons representing the Indira Gandhi Centre for Atomic Research in various forums for obtaining approvals within the DAE and with the Planning Commission/NITIAYOG.
- Provided commendable leadership in providing considerable ease of access to Scientific Information Resources, catering to various needs of researchers and a large community of students. Employed Innovative and advanced information technology principles to provide users access to information resources at IGCAR.
- E-governance towards paperless office: Instrumental in implementing workflow automation (ATOMS) at IGCAR to aid in moving toward a paperless office. A user-friendly interface for data management relating to personnel, administration, accounts, purchases, and stores has received broad appreciation and potential for adoption by other DAE units. Some of the DAE units have already implemented the same.
- Served as the Chairman of the Library and Information Science Committee, responsible for identifying the information resources required for IGCAR and allocating the budget for subscribing to and procuring the journals, databases, and books.
- Served as a committee member at the DAE level, responsible for finalising the agreement for a consortium with Elsevier.
- Served as a member of the "Complaints Committee" constituted to investigate the sexual harassment-related complaints at IGCAR, Kalpakkam.
- Served as a Member and subsequently as Chairman of Value Engineering Committees constituted to streamline and optimise the purchase and utilisation of procurement
  (a) Chemicals, laboratory equipment
  (b) library and information resources.
- Provided leadership in enhancing the "Technology Transfer and Intellectual Property Rights" activities at IGCAR. Served as Chairman of the Committee dealing with Intellectual Property Rights and was Co-Chairman of the cell for Technology Transfer and Intellectual Property Rights.
- Convener of the "Neighbourhood Development Program" at Kalpakkam, a program initiated to contribute to the development of the villages in the neighbourhood. The program aimed to uplift the quality of life in surrounding villages through better education, healthcare, infrastructure, and community development.
- Contributed to establishing Kalpakkam Community Radio as part of the neighbourhood development program.
- As the "official spokesperson", continuously interacted with the local public, students, and the media, organising exhibitions and lectures to dispel the doubts and fears about nuclear energy in the people's minds.
- Served as Vice Chairman of the Local Management Committee of Atomic Energy Education Society Schools (three) at Kalpakkam and Anupuram.
- Served as a member of committees constituted by the Chairman of the Atomic Energy Education Society, an autonomous unit of the Department of Atomic Energy, Mumbai, to discuss issues relating to governing the schools of the Atomic Energy Education Society. A Cadre Review of the Administrative cadre of the Atomic Energy Educational Society is one of them.
- Member of several professional bodies and served as Vice-president of the Indian Society for Mass Spectrometry (outside Head Quarters) for six years and as an executive committee member for several years.

Membership of *Professional* Bodies:

- Life Member of the Indian Society of Mass Spectrometry
- Life Member of the Indian Vacuum Society of India
- Life Member of Materials Research Society of India
- Life Member of the Indian Association of Nuclear Chemistry and Allied Sciences
- Life Member of Madras Library Association (MALA)
- Life Member of Kalpakkam Chapter of MALA
  (served as President of the same for several years)
- Member of the National Executive Committee of the Indian Society of Mass Spectrometry (ISMAS)
  For several years, and also held the position of Vice-President (Outside Headquarters).

Institution Building and Academic Management

- **BARC Training School at IGCAR**: Made outstanding contributions to realise the dream of starting the BARC Training School programmes at IGCAR. Played a pivotal role in formulating academic content, including the commencement of three new disciplines: Nuclear Reactor Physics, Nuclear Fuel Cycle Chemistry and Materials Science. He has made commendable efforts to realise the necessary infrastructure for the Training School and the hostels in a record period. Eleven batches graduated from the training school, and the 12th batch was undergoing training (at the time of superannuation).

- **Research Scholars at IGCAR**: Played a significant role in formulating the procedures and implementing (from its inception), the Homi Bhabha National Institute (HBNI) programmes at IGCAR. He has played a pivotal role in creating the necessary ambience for research scholars at the Centre and Hostels.

- **Contributions to HBNI at IGCAR**
  - Convener of the Apex coordination committee is responsible for organising the HBNI activities at IGCAR.
  - Served as a Member of the Standing Committees of Engineering, Physical and Chemical Sciences of HBNI at IGCAR.
  - Convener of the Standing Committee of Engineering Sciences of HBNI at IGCAR.
  - Coordinator of HBNI at IGCAR for providing inputs required for NAAC and coordinated the visits of the NAAC team to IGCAR.
  - Coordinator of HBNI at IGCAR for providing inputs for NIRF.
- Served as a member of:
  - Board of Studies of Chemical Sciences, HBNI
  - Board of Studies on Applied Systems Analysis, HBNI
  - Board of Studies of the Department of Library and Information Sciences of the University of Madras
- Served as Convener of the committees responsible for the selection of:
  - Research Associates (post-doctoral fellows)
  - Visiting Scientists
- Served as Chairman of the committees for the selection of research scholars from the disciplines:
  - Nuclear Science &Technology
  - Library and Information Science
- Served as the Convener of the committee responsible for allocating research projects to the scholars joining the Centre to pursue their doctoral programmes with HBNI.
- Convener of the committee responsible for assessing the suitability of applicants from IGCAR to pursue higher studies at reputed academic institutes like IIT and IISc.

- Convener of the committee with the mandate to assess the collaborative projects seeking funds under BRNS from various agencies.
- One of the nodal persons to interact regarding M. Tech programmes in Nuclear Engineering at various academic institutes, including IIT-Madras, UPES at Dehradun, PDPU at Gandhinagar, University of Delhi, and Mody University at Lakshmangarh, Rajasthan.

Editorial Contributions

- Member of the editorial committee of 9 Books/Proceedings.
- Chairman of the Editorial Committee of:
  (i) IGC Newsletter (quarterly publication)
  (ii) IGCAR Annual Report.

Publications

- Co-author of 65 Journal publications, 179 papers in symposiums/conferences and four confidential reports.
- Authored 11 chapters in Books/Proceedings.
- Edited 9 Books/Periodicals.
- Google Scholar: H-index of 22, i10-index of 40, citations of more than 1200.
- Research Gate: has more than 1.4 lakh reads.

Invited Talks

Chaired sessions and delivered invited talks at the Nuclear Energy Summits held in Mumbai for a few years.

Delivered several invited talks (>250) on diverse topics, and notable among them are the following:

- Technology Management
- Technology and Innovation
- Startup ecosystem
- Human Reliability
- Science and Risk Communication
- Access to Information in the Digital Era
- Technical Writing
- Self-motivation for Enhanced Performance
- Human Resource Development
- High-Temperature Chemistry and Thermodynamics
- Library and information sciences
- Atomic Energy for Energy Security and Enhancement of Quality of Life

Organising Seminars and Conferences:

Took an active part in the organisation of many Seminars and Conferences, some of which are:

1. The Bi-annual "Recent Advances in Information Technology (READIT)" (2009,2001,2013 and 2016)
   Chairman of the Organising Committee
2. Mass Spectrometry in Fuel Cycle
   Convener
3. Convener of the Institute Lecture series at Indira Gandhi Centre for Atomic Research, like
   (a) IGC Colloquium (b) Sarabhai Lecture (c) Homi Bhabha Lecture
4. Played an important role in organising several ISMAS Mass Spectrometric Conferences and Workshops

In the recent past:

At NIAS:

1. At NIAS, coordinated the NIAS-DST training programme on "Science & Technology: Global Developments and Perspectives" for two years, 2018 and 2019.
2. Discussion meeting on "Human Reliability Program (HRP) in Industries of National Importance."
   NIAS and Texas A&M University jointly conducted a discussion meeting with technical support from ORNL, USA, from April 24 to 26, 2019.
3. Six core group meetings on the "Human Reliability Program (HRP) in Industries of National Importance" were conducted.
   Core-Group Discussion Meetings organised during:
   (i) October 15-17, 2019.
   (ii) October 14-16, 2020.
   (iii) May 25-26, 2021.
   (iv) August 24-25, 2021.
   (v) February 28 - March 3, 2023.
   (vi) 5-7 December, 2023.
4. Discussion Meeting on "Communicating Ancient Indian Knowledge System for the Holistic Development of the School Students for their Physical, Mental and Spiritual Well-being"
   Organised from 7-8 May 2019 at NIAS. It is an NIAS and Chinmaya Vishwa Vidyapeeth, Ernakulam initiative with the support of the SATYAM programme, DST.

Projects undertaken in the recent past:

1. *DST Project:*
   Managing Public Perceptions and Public Acceptances of Public Risks Associated with New and Emerging Technologies Through Science and Technology Communications
2. BRNS-sanctioned project:
   Determinants of Nuclear Risk Perception in India: An Integrated Analysis.
3. *A NIAS-Texas A&M University collaborative project.*
   The work relating to the "Human *Reliability* Program (HRP) in Industries of National Importance" is a collaborative effort of NIAS and Texas A&M University.
4. Ancient Indian Knowledge System for the Holistic Development of School Students.
   A three-day and a two-day discussion meeting was organised with financial support from DST.
5. Capacity Building: Nuclear and Radiological Safety and Security (ongoing)
   Oak Ridge National Laboratory, USA-funded project

Awards:

1. Winner of **Prof. Nil Rathan Dhar Prize** in Physical Chemistry for the course of Masters in Chemistry, Andhra University, Visakhapatnam
2. Conferred **Doctor of Science (Honoris Causa)** by Dr MGR University, Education and Research Institute
3. **DAE Group Achievement Award:** Member of the Team that won the award for contributions to "Collaborative Research Coordination under BRNS and Outreach Activities for Human Resource Development
4. **Fellow** of the **Academy of Sciences, Chennai**, **Tamil Nadu**
5. **Best Paper Awards:** Many of the research papers (twenty) co-authored have won **Best Paper Awards**