The 86th Indian Science Congress
The Indian Science Congress Exhibition
& The 6th National Children's Science Congress.

(IMSc participation – A Report)

After the Institute of Mathematical Sciences came into being, in 1962, the Indian Science Congress came to the city for the first time this year, after a gap of 41 years. Following is a report of the Institute's participation in the

- 86th Indian Science Congress, Jan. 3 - 7, 1999 (ISC).
- Indian Science Congress Exhibition, Jan. 3 - 8, 1999 (ISCE'99).
- 6th National Children's Science Congress, Dec. 27 - 31, 1998 (NCSC'98).

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86th Indian Science Congress (ISC'99):

The ISC'99 was inaugurated by the Prime Minister of India, as is the tradition of the annual Science Congress meetings, on Jan. 3, 1999. On this occasion, the Chief Minister of Tamil Nadu in his speech stated:

> *Steps have been taken to establish a "Ramanujan Museum" – in the name of the mathematics wizard of Chennai jointly by the University of Madras and the Institute of Mathematical Sciences here.*
>
> *Mr. Karunanidhi appealed to the Prime Minister to consider "making the museum into a national asset."* (The Hindu, Jan.4, 1999).

The *Campus Jottings* section of the Hindu (dated Jan. 4, 1999) stated:

> *Scientific bodies and Institutes such as the M.S. Swaminathan Research Foundation and the Institute of Mathematical Sciences are playing vital roles in supporting the host.*

The Programme consisted of Symposiums, Special Lectures, Invited Lectures in Sections, meetings of Committees and Forums, held in various halls of the Anna University, from Jan. 3 to 7, 1999. The Focal Theme of the 86th ISC'99 was *New Biosciences: Opportunities and challenges as we move into the next millennium.* IMSc was one of the 13 Collaborating Institutions and Dr. R. Ramachandran, Director was on the Committee of Hosts. Plenary Session - IV on Jan. 5, was a *Genome Summit (Human Genome)*, chaired by Dr. James Watson, Nobel Laureate.

There were 16 sections and S-10 was the Mathematics Section. The late Dr. Subhashis Nag was the Local Sectional Secretary for S-10 and he had contributed to the organization of the Academic Programme, a copy of which was distributed to various institutions ahead of time and displayed in our Institute also. On Jan. 4, the Presidential address by Dr. J.B.S. Passi (Mathematical Sciences Section) was preceded by a Condolence Resolution on the untimely demise of Dr. S. Nag, which was read out by Dr. C.S. Seshadri, F.R.S. Dr. K. Srinivasa Rao of IMSc and Dr. N. Muthiyalu of the Anna University were made the local Sectional Secretaries. Dr. Kapil Paranjape gave an invited special lecture. Dr. KSR also was invited to give a special lecture on *Ramanujan's work - glimpses*, on Jan. 6. Some of the faculty and students of IMSc participated in some of the sectional meetings which were held in the Science Building, Hall No. 60.

Indian Science Congress Exhibition (ISCE'99):

The Exhibitions are an addition to the annual ISC meetings for the past few years and have been a source of major attraction to the public. There were in all about 100 exhibitors and these exhibitions were in five main (Drawing) Halls of the Anna University's main building. The IMSc had three stalls in the ISCE'99 and these were:

- The Institute of Mathematical Sciences (Hall No. 30).
- πie Pavilion and Pilot CD on Ramanujan (Hall No. 13).
- Ramanujan Museum (Replica of the one at Royapuram) (Hall No. 13).

<u>The Institute of Mathematical Sciences:</u>

The stall was of dimension $3m \times 3m$ and three walls were devoted to depicting posters (12 in each discipline) on Computer Science, Mathematics and Theoretical Physics, besides 10 photographs of the Institute (as depicted in the 1998 Annual Report of the Institute). The following members of the Institute took part in creating the Posters and/or volunteering to be present at the stall to explain the activities of the Institute to the visitors to the stall[1]:

[1] P – Poster preparation; V – Volunteer to explain in the stall, O – Organization

Computer Science:	Students:	P. Madhusudan	(P)
		B. Meenakshi	(P) + (V)
		S. Srinivasa Rao	(V)
		S.P. Suresh	(P) + (V)
	PDF:	V. Kamakoti	(P) + (V) + (O)
	Faculty:	Kamal Lodaya	(V)
		Meena Mahajan	(P)
		R. Ramanujam	(P) + (V)
		Venkatesh Raman	(P) + (V) + (O)
		Anil Seth	(P) + (V)
Mathematics:	Students:	M. Rajesh	(P)
		G.V. Ravindra	(P)
	PDF:	Jishnu Biswas	(P)
	Faculty:	Shreedhar Inamdar	(P) (O)
		(late) S. Nag	(P) (O)
		D.S. Nagaraj	(P)
		K. Srinivas	(P)
Physics:	Students:	Arundhati Dasgupta	(P)
		Pushan Majumdar	(V)
		S. Murugesh	(V)
		Suneeta Varadarajan	(P) + (V)
		Radhika Vathsan	(P)
	PDFs:	K. Nakkeeran	(V)
		Mitaxi Mehta	(V)
	Faculty:	Radha Balakrishnan	(P)
		G. Date	(P)
		D. Indumathi	(V)
		R. Jagannathan	(P)
		H.S. Sharatchandra	(P)
		R. Sridhar	(P)
		K. Srinivasa Rao	(O)
		Sudeshna Sinha	(P)

Visitors to the exhibition included several senior school students who heard about the Institute and its activities for the first time.

πie Pavilion and Pilot CD on Ramanujan:

The idea of having a π-Room, like the one in Paris, in a Museum to house the original Notebooks of Srinivasa Ramanujan was mooted by Dr. K. Srinivasa Rao on April 26, 1998, at a function in the Avvai Academy, when Dr. V.S. Ramamurthy suggested that a πie-Room may be created at the ISCE'99. This is the origin for the πie Pavilion, a project approved by the Department of Science and Technology for the ISCE'99.

The project had Drs. K. Srinivasa Rao and R. Jagannathan as its coordinators. A 12 ft. diameter, 2 ft. deep, wooden, cylindrical structure was designed to display on its inside surface about 404 digits of the transcendental number π. The cylinder made was erected on four wooden pillars at Hall No. 13 of the Anna University in time for the 6th National Children's Science Congress which preceded the ISC'99. About 40 posters were designed, enlarged and laminated. The largest was a poster which depicted the first 2000 digits of the transcendental number e. The story of π and e, related through the equation: $e^{i\pi} + 1 = 0$ and a brief history of π, i and e was traced in the posters. The contributions of the Indian mathematicians, Euler, Gauss, Jacobi and the several formulae of Ramanujan including his 17 infinite series representations were highlighted. Two posters of the Gateway Arch of St. Louis exemplified the catenary. The punch line of the Pavilion was *Never Say, $\pi = 22/7$, Never Again*!

The coordinators were assisted by the Library staff, in particular, and Dr. G. Subramoniam of the Institute. Two students: K. Madhu and Santhosh Kumar of IMSc helped in the making of a few posters. Volunteers to explain to the teeming visitors were organized by Dr. K. Srinivasa Rao and they were students of Anna University and teachers of Kavi Bharathi Vidyalaya.

The Pilot CD on Srinivasa Ramanujan was a multimedia presentation of a brief history of the life of Ramanujan, with some of the available pictures. The story of the taxi cab number and animated presentation of the nested roots formula for the number 3, were added to the interactive narration of the life of the mathematical genius. The preparation of the text for this from chapter 1 of the book of K. Srinivasa Rao was first made in html files and the former mathematics student I. Suresh of the Institute helped in this project. The final multimedia presentation for the CD was made with the help of a team of professionals at NIIT, Delhi, coordinated by Dr. S.N. Uma of NIIT, Chennai.

Ramanujan Museum (Replica):

A Ramanujan Museum was created in 1993 in the premises of the Avvai Academy by the dedicated Mathematics Teacher Mr. P.K. Srinivasan. The idea of making a replica of this Museum was included as a part of the DST Project by Drs. K. Srinivasa Rao and R. Jagannathan. The posters depict mostly the number patterns observed/discovered by Ramanujan and contained in his famous Notebooks. The Replica recreates these posters as laminated photo enlargements of the originals. Thanks to Mr. W. Narayanan – foster son of the late Mrs. Janakiammal Ramanujan – a copy of the bronze bust of Ramanujan made by the renowned sculptor Paul Granlund presented in 1984 to Mrs. Ramanujan; and the original Passport of Ramanujan were displayed, in specially made display cabinets, along with the Notebooks (facsimile editions) of Ramanujan.

The enthusiastic and whole-hearted cooperation of Mr. P.K. Srinivasan, as a Resource Person and a volunteer to the NCSC'98 and the ISCE'99 contributed to the success of the whole project. Mr. A.T.B. Bose, Secretary of the Avvai Academy, organised the prepartion and erection of the banners for the ISCE'99. Ms. Nirmala took part in the NCSC'98 and displayed the publications of the Mathematics Education Center of the Avvai Academy, especially during the NCSC'98.

Visitors to the πie Pavilion, Pilot CD on Ramanujan and the Ramanujan Museum (Replica) which were juxtaposed to each other in the Hall No. 13 included: Dr. R. Chidambaram, Dr. Abdul Kalam, Dr. V.S. Ramamurthy. The DAE Chairman suggested that the project may be repeated for the Nehru Museum of the TIFR. Dr. Abdul Kalam wanted the exhibitions to be on wheels and taken to all parts of the country. Dr. C.K. Gariyali wanted the exhibitions, after the ISCE'99, to be moved to the Tamil Nadu Science and Technology Center to become part of the Periyar Science and Technology Park. *Steps are being taken to house the exhibitions with some modifications in the TNSTC and open the same for the public in the near future.*

The 6th National Children's Science Congress (NCSC'98):

Dr. R. Ramanujam was the Convener of the Programme Committee of the 6th NCSC'98. The members of the Institute involved in NCSC'98 (from IMSc) were[2]:

Students:	Arundhati Dasgupta	(R)
	P. Madhusudan	(R) + (O)
	B. Meenakshi	(R) + (O)
	M. Rajesh	(R) + (O)
	G.V. Ravindra	(O)
	Sumithra Sankararaman	(R)
	Suneeta Varadarajan	(R)
Post Doctoral Fellow:	Mitaxi Mehta	(R)+ (O)
Faculty:	V. Arvind	(R)
	G. Baskaran	(S)
	G. Date	(R)
	D. Indumathi	(O)
	Kamal Lodaya	(C)
	Meena Mahajan	(R) + (O)
	M.V.N. Murthy	(R) + (O)
	Kapil Paranjape	(S)
	R. Ramanujam	(C)
	R. Shankar	(S)

[2]R – Reviewer for Project Presentations; O – Organizational assistance; S – Speaker at Interaction Sessions; C – Organizing Committee member; E – Exhibitor.

Faculty:	K. Srinivasa Rao	(E)
	G. Subramoniam	(O)

A total of nearly 600 children (junior: 9-13 years and senior: 14-17 years), 150 teachers and 45 coordinators from all over the country, along with 17 National Council of Science and Technology Communications (NCSTC) network members, registered for the NCSC'98. A total of 460 projects were presented, of which more than half were presented in Indian languages. Besides these, a Plenary Science lecture, a science festival (organized by the TN Science Forum consisted of five activity corners), meetings with scientists, teachers' meetings, feed back sessions and four intensely interactive mini-workshops, were part of the academic activities of the Congress. The eight sessions of 90 minutes duration each were held in 12 halls. 87 reviewers from the community of scientists and teachers from Chennai reviewed/listened to the presentations in 12 languages.

The following 6 exhibitions were presented in Hall 13 of Anna University, from the morning of Dec. 28 to 31, for the delegates of the NCSC'98 and the general public:

- History of Science, by NCSTC, Dept. of Science and Technology (DST).
- Biodiversity, by C P Ramaswami Environmental Education Centre.
- Replica of Ramanujan Museum in Royapuram, IMSc's DST Project.
- πie Pavilion , IMSc's DST Project.
- Remembering Hiroshima, by Tamil Nadu Science Forum.
- Suresh and the Sea, Books and Stories, by Goodbooks Marketing.

The visits by dignitaries from the State (Education Minister) and Central Government Departments (Secretary, DST), Directors of (IMSc, IIT, MSSRF, NCSTC) Science and Technology Institutions, Vice Chancellors of Madras and Anna Universities; excursions and various cultural programmes in the evenings, added variety to the NCSC'98. A brief but detailed report prepared by Dr. R. Ramanujam of IMSc concludes with:

> *On the whole, NCSC'98 combined the seriousness of an academic conference with the vibrancy of a festival, and offered a host of enjoyable educational opportunities for participant teachers and children.*

The estimates for the number of people who saw the exhibitions are: about 5,000 for the NCSC'98 and about 50,000 for the ISCE'99.

Report prepared by K. Srinivasa Rao, with inputs from Drs. V. Kamakoti, D.S. Nagaraj, R. Ramanujam and Venkatesh Raman.