

S.Kasthuriengan

Professor



<i>Name:</i>	KASTHURIENGAN
<i>First Name:</i>	SRINIVASAN
<i>Date of Birth & Age:</i>	12 July 1948 & 63 years
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EDUCATION

University	Degree	Class	Year
Bombay University TIFR, Bombay	Ph.D (Physics)		1975
Madras University St.Joseph's College, Trichy	M.Sc (Physics)	I Class (2nd Rank)	1969
Madras University St.Joseph's College, Trichy	B.Sc (Physics)	I Class (9th Rank)	1967

PROFESSIONAL EXPERIENCE

<i>Institution</i>	<i>Position</i>	<i>Year</i>
Indian Institute of Science, Bangalore 12	Professor & Chairman.	2006
“ “	Associate Professor	2000
(Centre for Cryogenic Technology)	Principal Research Scientist	1992
“ “	Senior Scientific Officer(SG)	1990
“ “	Senior Scientific Officer	1985
“ “	Scientific Officer	1980
“ “	Research Associate	1976
St. Joseph’s College, Trichy 2	Assistant Professor	1975

MEMBERSHIP OF PROFESSIONAL BODIES

Founder Life Member (Indian Cryogenic Council) and currently Treasurer ICC (South Zone)

VISITS ABROAD AND EXPERIENCES GAINED

- a) Freie Universitat Berlin, Germany
(One year from October 1981 to September 1982, as a DAAD Fellowship Holder)
Worked under Prof. Dr. G. Klipping on problems relating to Superfluid helium flow through narrow pored geometries
- b) Forschungszentrum Karlsruhe
(One year from September 1987 to September 1988, as an International Buro Fellowship holder)
Worked with Dr.A.Hofmann in the Institute for Technical Physics, on problems relating to Fountain Effect Pumps for Superfluid Helium and cooling circuits for superconducting magnets and Heat transfer
- c) Justus Liebig Universitat, Giessen
(8 months from February 1998 to October 1998) under DAAD re-visit programme)
Worked with Professor Dr. Christoph Heiden, on PULSE TUBE REFRIGERATORS, their performances at different orientations
- d) Washington University in St. Louis, USA
(4 months from September 2004 to December 2004)
Worked with Prof Ramnath Cowsik on problems relating to gravity waves. Involved in setting up of the experimental up for the detection of gravity waves by Torsion Balance.

WORK EXPERIENCE

Joined the Centre for Cryogenic Technology in 1978 and have grown with it. Now I have 36 years of Experience as a Cryogenic Scientist, at the Indian Institute of Science, Bangalore, India

The Centre for Cryogenic Technology (CCT) now has two Liquid Nitrogen Plants (StirLIN and PSA) and the Liquid Helium Plant KOCH 1410 (modular type) and a number of ancillary systems such as Helium recovery system, water chilling units etc. A key person responsible for the installation, operation and

maintenance of liquid nitrogen and liquid helium plants in the Centre. It has been my primary responsibility to ensure continuous and reliable supply of cryogenic fluids, liquid nitrogen and liquid helium for all the users at the institute. At present, around 4,25,000 liters of Liquid Nitrogen and about 30,000 liters of Liquid Helium per annum are being supplied to the various users.

Several major facilities like Sophisticated Instruments Facility (SIF) having three NMR spectrometers with superconducting magnets, SEM, EDAX, ESCA etc., are functioning quite well due to the reliable and adequate supply of cryogenic fluids. The Centre has achieved the distinction of being one of the premier cryogenic facilities in the country.

AREAS OF RESEARCH

The major research programmes undertaken have been the following:

1. Studies on Superfluid helium flow through narrow geometries and Helium II heat transfer
2. Design & Fabrication of Cryogenic Systems.
3. Thermal Optimization studies of Cryogenic Insulations for Storage Dewars for Cryogens
4. Cryogenic Instrumentation and Gas Sensors development.
5. Cryocoolers Pulse Tube & Thermoacoustic Refrigerators

RESEARCH PROJECTS UNDERTAKEN:

(A) As a Principal Investigator

1. *Indo-German Project "Superfluid Helium flow through narrow geometries"(1988-92)*
2. *DST Project on "Development of an Acoustic Mass Flow Meter for Cryogenic Fluids"(1990-1993)*
3. *DST Project on "Development of an Electro-acoustic Helium Gas Purity Monitor for Helium Gas Recovery Systems"(1994-1997)*
4. *CSIR Sponsored project on "Convection-free Single Stage Pulse Tube Cryocooler operating at 77K".(2001-2003)*
5. *DAAD funded project on "Two Stage Pulse Tube Refrigerator Operating at 4.2K"(2002-2003)*
6. *BRNS project on "SQUID detection of Low Frequency NMR / NQR"(2002-2006)*
7. *CSIR project on "Multistage Pulse Tube Cryocooler based cryostat for 4.2 K experiments"(2004-2007).*
8. *RRI project on "Development of Cryogenic Cooling System for Radio telescope receivers using Cryocoolers based on Linear Motor Compressors"(2004-2007)*
9. *DST project on "Development of MMOS based Smart Gas Sensors for Carbon Monoxide"(2006-2008)*
10. *CSIR project on "Development of Thermoacoustically driven Pulse Tube Cryocooler for natural gas liquefaction" (2007-2011).*
11. *BRFST project on "Experimental facility for Study and Characterization of Adsorbers down to 4.2K for Development of Cryosorption Pumps in IPR"(2009-2012)*

(B) As a Co-investigator

1. DST project on "100 litre Superinsulated liquid Helium Dewar and Remote Delivery Tube" (1988-1994)
2. IIA project on "Design and Development of CCD Cryostat for Astronomical Telescopes"(1992 -1995)
3. DST Project on "Thermal Optimization of Liquid Helium Dewar"(1994-1996)
4. DRDO project on "Studies on Vortex Tube Air Separator- Phase I (1995-1997)
5. Indo-German Project on "Cryogenic Aspects related to MR Tomographs" (1985 -1995)
6. DRDO project on "Enhancement of Vortex Tube Technology for HTV"(2003 -2006)
7. DRDO Project on "Solid State Optical Cryocoolers: Design, development of novel optical Cryocoolers and thermal / optical characterisation thereof"(2003-2006)
8. ISRO-STC project on "Development of a Single Stage Pulse Tube Double Inlet Cryocooler and Numerical Modelling" (1999 -2001)
9. BRNS project on "Liquid Helium Cryostat for Operation of SQUIDs for NDT studies" (2001 -2004)
10. ISRO-STC project on "Cryogenic Treatment of Metals"(2003 -2005)
11. TDM project on "Cryogrinding of Spices"(1995 -2000)

CONSULTANCY PROJECTS UNDERTAKEN

As a Consultant

1. Bhoruka Engineering Industries, Bangalore "Design and Development of 30 litre Capacity Cryogenic Containers" (1983)
2. BEL, Bangalore "Design and Development of 400 litre capacity LN2 Tank" (1984)
3. HAL, Bangalore "Design and Development of 220 litre capacity Mobile LOX Dispensers" (1985-1990)
4. BHEL, Hyderabad "Design and development of a liquid helium transfer coupling and Thermal Shield for a 220KVA Superconducting Generator"(1992-1995)
5. BHEL, Hyderabad "Design and development of a liquid helium transfer coupling and Thermal Shield for a 5 MVA Superconducting Generator"(1995-1996)
6. HAL, Bangalore "Advice on the Performance Restoration of Oxygen Breather Converters for Indian Airforce (Phases I and II) (1994-1999)
7. ISRO, Bangalore "Calibration of temperature Sensors Phases 1, Phase II, Phase II and Phase IV"(1997-2008)
8. Avasarla Automation, Bangalore "Technical Advice on Ambient Pressure Thermal Cycling Facility" (2001-2002)
9. Microtex, Bangalore "Cryogenic Pulveriser for PVC Scraps" (1999-2004)

10. *Kaps Engineers, Baroda, "Advice on Cryomilling System" (2003-2005)*

INDIAN PATENTS

- (i) Cryogenic bending technique for thin walled metallic tubes.(491/MAS/92)
- (ii) A remote delivery tube with integral Joule-Thompson valve for Helium Liquefier (490/MAS/92)
- (iii) Formulation of low temperature adhesive and bonding technique for cryogenic containers (492/MAS/92)
- (iv) Concentric tubular support design for Cryogenic Tanks (489 / MAS/92)
- (v) Optical Cryocooler with thermal shields cooled by waste fluorescence energy driven by thermoelectric cooler (625 /MAS/2002)
- (vi) Cryogrinding of waste Plastics and other materials (64 / CHE /2004)

OTHER ACTIVITIES

1. Students

- (a) Guided three students for Ph.D programme
- (b) Guided 2 students for Master of Engineering. They completed their projects on
 - (a) "Experimental studies on cool-down of liquid nitrogen transfer lines" (1995) and
 - (b) "Cool-down & mass flow studies of vertical liquid nitrogen transfer lines" (1996).
- (c) Current number of Ph.D students: 2

2. Teaching

- (a) `Cryogenic Technology' course offered under Proficiency programme
- (b) `Cryogenic Engineering' course offered at the Institute

3. Short-term courses

Faculty of the QIP short term course on 'Cryogenic Technology', August 1995 and September 1999

4. Awards Received

- Indian Cryogenic Council - "M. C. Joshi Memorial Award" (1995)
- Chairman, Centre for Cryogenic Technology since September 2006
- Invited speaker in St. Joseph's College, Trichy – Special lectures 2004
- Expert member of several committees for evaluation of Scientists
- Examiner for several theses of Ph.D students in the country.

5. Total number of publications:71