Gayatri Vidya Parishad
Prof .V. Lakshmikantham Institute for Advanced Studies
(GVP-LIAS)

Founder Director (2007-2012)

	Dr. V. Lakshmikantham(1924-2012)	●Professor, Dept. of Mathematical Sciences, Florida Institute of Technology, Melbourne, Florida, ●Founder Editor–in–Chief, Journals of Nonlinear Analysis Series A: Theory, Methods, and Applications, Series B: Real World Applications and Series C: Hybrid Systems. ●Founding President of International Federation of Nonlinear Analysts (IFNA).

Director (2014-present)

Dr. Syamal K. Sen	1. Former Professor of Indian Institute of Science, Bangalore and Florida Institute of Technology, USA (1996-2004 & 2004-2012, respectively) 2. Visiting Professor of Computer Science and Engineering, Gayatri Vidya Parishad College of Engineering (GVPCE) 3. Author/co-author of over 200 Research Articles and 8 research monographs/books in Mathematical and Computational Sciences (published by Elsevier (Netherland), Cambridge Scientific Publishers (UK) Springer (USA), Academic Press (USA), Affiliated East-West Press (India), and others) 4. Former Indo-US Fulbright Fellow for teachers at Florida Institute of Texchnology, USA (1991)

Associate Director (2007-present)

Dr. J. Vasundhara Devi	1. Professor, Dept. of Mathematics, GVPCE 2. Acted as the Director during the physical absence of the regular Director. 3. Author/co-author of 5 research monographs/books, and several research articles in mathematical sciences

Honorary Director (2014-present)

Dr. Sadashiv G Deo.	1. Former Professor of Mathematics and Dean, University of Goa 2. Former Director of GVP-LIAS 3. Author/co-author of several mathematical books for researchers, students and school children both in English and Marathi as well as several research articles in mathematical sciences

Adjunct Professor

E.E. Escultura	1. Former Professor, University of Philippines 2. Author/co-author of several research articles/research monographs in mathematical sciences

Visiting Professor

Roger G. Marshall	Professor, Department of Computer Science and Engineering, Plymouth State University, USA

Advisory Board

Dr. Ing. P.Srinivasa Rao	1. Professor in Civil Engineering, GVPCE 2. Advisor and Research consultant, Gayatri Vidya Parishad (GVP) 3. L&T Life Time Achievement Awardee 4. Specialization: Structural Engineering
Dr. K. Raja Gopal	1. Distinguished Professor, 2. Forsyth Chair in Mech. Engineering 3. Professor of Mathematics, Biomedical Engineering, and Civil Engineering
Dr. Girija Jayaraman	Professor, Centre for Atmospheric Sciences, IIT Delhi, Specialization: Math. Modeling
Dr. I.H.Nagaraja Rao	Senior Professor, Dept. of Mathematics, GVPCE and GVP College for Deg. and PG courses. Specialization: Analysis and Graph Theory
Dr. P.Somaraju	Professor, Dept. of Mathematics, GVPCE and Secretary, GVP
Dr. M. Umadhar Patnaik	University of Toledo, Ohio, USA, Specialization: Differential Geometry
Dr. Chris P. Tsokos	University of South Florida, USA, Specilization: Mathematical Sciences

Germination of the idea: October 2006

Prof V. Lakshmikantham during his short visit in October 2006 suggested to Professor P. Somaraju, Secretary, GVP to create an institute to promote research and scholarly activities.

Birth of GVP-LIAS: 2007

Consequently, GVP-Prof.V. Lakshmikantham Institute for Advanced Studies (GVP-LIAS) (in place of Gayatri Vidya Parishad Institute for Advanced Studies (GIAS)), was established in 2007 in the campus of GVPCE. It is the offspring of Prof. Lakshmikantham's vision for a research institute that encompasses a broad spectrum of areas and the management's initiative to support it. Prof. Lakshmikantham's generous financial support gave impetus to the growth of the institution.

Achievements in a Nut-shell

Since its inception in 2007, over **100 research papers** in refereed journals and **4 research monographs (including 2 major ones)** have been published. **Two international conferences** on Recent Advances in Mathematical Sciences and Applications (**RAMSA**) were organized in 2009 and 2013. Several renowned scientists from various countries participated. **Two research projects** from Department of Science and Technology (**DST**) and National Board of Higher Mathematics (**NBHM**), Department of Atomic Energy have been satisfactorily completed.

Under the able guidance of Prof. S. G. Deo, the former Director of the institute, the institute expanded its functions by organizing **training programs** for faculty and students appearing for **NET exam**. Further **workshops** for the faculty of GVPCE and other institutes/colleges, specifically math. faculty at various levels (from school teachers to engineering faculty) have been organized. Such programs are continuing regularly keeping in view the fast changing faces of mathematical and computational sciences.

Prof.S.G. Deo took initiative and chalked out collaborative activities with GVPCE. Consequently, the following programs were organized.

Dr. Z.Drici, Dean and Professor, Department of Mathematics, Illinois Wesleyan University, USA visited the institute and spent one month of her sabbatical leave at the institute. She introduced the **Concepts of Mathematical Modeling** to the research scholars and faculty of the Department of Mathematics, GVPCE.

During this year, much academic work has been accomplished. Dr. J.V. Devi, Mr. N. Ch. N. Suresh, and Mr.I. S. N. R. G. Bharat have translated into Telugu, popular mathematical articles written by Professor S. G. Deo in Marathi. It is a matter of pride to record the unstinted support and the tenacity of Professor S. G. Deo who translated all the work into English so that we could translate them to Telugu. This work resulted in the book entitled **Ganitam Identically Equal to Jeevitam.** The institute published during the year about 15 research papers in referred international journals.

Professor Deo shifted to Mumbai on Feb 1, 2014 and in his place **Professor Syamal K. Sen**, former Professor of Indian Institute of Science (I.I.Sc.), Bangalore and Florida Institute of Technology, USA was invited as the Director of the institute.

GVP-LIAS under the guidance of Prof. **Syamal K. Sen**, Director, of the institute (GVP-LIAS) who joined the institute on Sep 06, 2014 took and continued collaborative activities with the GVPCE/others as depicted under the heading **Further Detailed Progress/Work During 2014-2015**.

GVP-LIAS During 2007 ─ 2015: An Overview

GVP-LIAS since its inception in 2007 took active part in supporting and promoting the ideas of Prof. V. Lakshmikantham. The institute uses its sphere of influence and helps to bring resource persons from various parts of the world. It believes in cooperation and works in collaboration with the Dept. of Mathematics, in particular and other engineering Depts., in general. A brief exposition of the speakers that visited the GVP-LIAS and GVPCE from 2007 onwards is as follows.

- Professor **F.E. Udwadia**, University of Southern California, Los Angeles, CA, USA gave lectures on **Analytical Dynamics: A New Approach** during Mar 29 ─ Apr 03, 2007. These lectures were organized in association with the Dept. of Mechanical Engineering, GVPCE.
- **Professor V. Lakshmikantham,** Florida Institute of Technology, Melbourne Fl., USA delivered a series of two month lectures on **Differential Equations** during Nov-Dec, 2007. This series was organized in collaboration with the Department of Mathematics, GVPCE.

- Professor **Girija Jayaraman**, Department of Atmospheric Sciences, IIT, Delhi gave lectures on **Mathematical Modelling (with special reference to Chilka Lagoon)** and **Various Options for Research Projects for Men and Women Scientists** during Nov 5-6, 2007.

- Professor **J.N.Reddy**, Texas A&M University, Texas, USA gave lectures on **Advanced Finite Element Analysis** during Dec 20-24. 2007. These lectures were organized in association with the Dept. of Mechanical Engineering, GVPCE.

- Professor **Chris Tsokos**, University of South Florida, USA gave a short term program on **Global Warming** during Jan 6-10, 2008.

- Professor **R .G. Marshall**, Department of Computer Science and Engineering (CSE), Plymouth State University, USA gave a short term program on **Bio-Informatics and Speech Recognition** during Jul 21-26, 2008. This program was organized in collaboration with the Department of Computer Science and Engineering, GVPCE.

- An international conference on Recent Advances in Mathematical Sciences and Applications (**RAMSA 2009**) was organized in 2009; Among others, 15 eminent scientists from seven countries had participated.

- 1-day National Seminar on **Modern Utility of Vedic Science** and **ISERVE (Institute of Scientific Research on Vedas) Hyderabad** on Feb 26, 2011 with the Department of Mathematics, GVPCE was held.

- Organized a Coaching Program for the **National Eligibility Test** , during Apr 14 – Jun 10, 2012 in GVP College for Degree and PG Courses.

- A workshop on **Emerging Trends in Mathematical Applications to Engineering** during July 19-22, 2012 was organized for Mathematics faculty of Engineering Colleges in the region.

- Conducted jointly with the Dept. of Mathematics, GVPCE a National Workshop on **Fractional Differential Equations and Stability Theory** during Nov 17-19, 2012 organized in memory of Prof. V. Lakshmikantham and also celebrating the 125th Birth Anniversary of Ramanujan.

- Dr. **S. K. Sen**, Director, GVP-LIAS gave a 1-month intensive course on **Applicable Computational Mathematics with MATLAB** during 10th Dec 10. 2012-Jan 9, 2013. This course was organized jointly with the Dept. of Information Technology, GVPCE.

- Dr. **R.G. Marshall**, Professor, Plymouth State University accepted our invitation and spent some of his sabbatical with the institute. He was the visiting Professor of the Institute from Sep 5 – Oct 31, 2013. He gave extensive lectures with hands on experience on the course on **Image Processing** during Sep 08-Oct 10, 2013. He collaborated with Dr. J.V.Devi and team and did some research work on **Big Data**. He gave valuable suggestions to the younger faculty in their work.

- In association with the core departments of the GVPCE, GVP-LIAS organized the 2nd International Conference on **Recent Advances in Mathematical Sciences and Applications** (**RAMSA-2013**) under TEQIP II, S.C.1.2. The Conference was a phenomenal success. The International speakers came from five countries –Poland, Turkey, USA, Italy, and Australia.

  Famous personalities like Dr. K.Rajagopal, Texas A&M University, Dr. D.Kannan, University of Georgia at Atlanta, Dr .P.Tardelli, Dr. S.Centanni from Italy, Dr. Marat Akhmet from Middle Eastern Technical University, Turkey; Dr. Jan Awrejcewicz, Lodz University of Technology, Poland, Dr. Andrew Howe, TransAtlantic Petroleum, Turkey; Dr. S.G.Leela, SUNY, USA; Dr. E. E. Escultara (Retd. Professor, University of Philippines, currently residing in Australia) were some of the well-known international experts. At the national level, experts from prestigious academic institutions like IITs and B.H.U. gave wonderful exposition on latest developments. Researchers from renowned organizations such as ISRO, and NSTL (National Software Testing Laboratories), had interacted with the participants and shared their expertise by giving lectures.

- As a part of celebrations of the 90th birth anniversary of Prof. V. Lakshmikantham on Mar 16, 2014, the eminent and widely acclaimed medical doctor Dr. **C. Sadasiva Rao** was invited and he gave an enlightening talk on **Stress Management**.
- A 2-day workshop on "**Methods of Fast Computing using Vedic Mathematics**" was organized during Oct 29-30, 2014 with the department of mathematics. The speaker Dr. **Sitanshu Ghoshal** delivered the lectures and motivated the students to learn Vedic Mathematics.
- One of the prodigies of mankind Srinivasa Ramanujan's birthday on Dec 22, 2014 was enthusiastically celebrated by organizing a national conference on "**Ramanujan's Works and Current Trends in Computational Mathematics**" on Dec 22 and 23, 2014. Renowned mathematicians from several parts of India addressed the gathering. Prof. **S.N. Gupta** from Vallabhai University (Gujarat), Prof. **Pathan** from Aligarh Muslim University (Uttar Pradesh), and Prof. **Lellis Tivagar** from Tamilnadu gave excellent expositions on **Ramanujan's works and their real-world applications.**
- Prof. **S.K. Sen** gave a wonderful exposition on **Computation**. He took the audience through the strides made from the card/tape computers to the latest laptops.
- Prof. **S. Sundar**, Dept. of Mathematics, IIT (Madras), Chennai explained **How mathematics was employed in practical problems** by explaining one of his research project problems sponsored by industry.
- Prof. **S. Srivastava** gave an enlightening talk on **Image Processing**. There were around 50 participants for two days. The lectures were interesting and the students were motivated.

● An intensive course on "**Cyber Security**" has been **organized** in collaboration with Dept. of Computer Science and Engineering, GVPCE. Prof. **R. G. Marshall** of Plymouth State University was the resource person. He gave lectures in mornings and hands on exercise in evenings for 5 days (Jan 5 – 9, 2015). The participants were exposed to the basic problems and many faculty gave the feedback that the course helped them a lot and injected confidence.

● On Prof.V. Lakshmikantham's 91st birth anniversary on Mar 16, 2015, a 1-day symposium on **Mathematical Applications in Communication Engineering** was organized jointly with Department of Electronics and Communication Engineering, GVPCE.

Dr. **V. Adi Murty**, Satish Dhawan Professor and Senior Advisor Interplanetary Missions, ISRO gave a wonderful description of the "**Mars Orbital Mission**" (MOM) and also showed rare pictures of mars.

Dr. **S. Sundar**, IIT (Madras), Chennai discussed on **Optimizing computational aspects of a research problem** of his work and Smt. **T.Vijaya,** Scientist F, NSTL gave an interesting talk on "**Applications of engineering in under-water communications and detection**".

Library

The institute proudly acknowledges the donation of "4000+" International Mathematical journals and "1200+" books belonging to the disciplines of Mathematics, Computer Science, Electrical and Electronics Engineering by **Dr. V. Lakshmikantham,** Florida Institute of Technology, Melbourne Florida, USA., **Dr. S. G. Leela,** Professor Emeritus, State University of New York. Geneseo, U.S.A. and **Dr. R. G. Desmukh,** Dept. of Elec. & Comp. Engg., Florida Institute of Tech., Melbourne Florida, USA. Further, an amount of Rs.3,00,000/- worth books have been purchased from the NBHM Project grant.

Sponsored Research Projects Completed

Two research projects one from DST (May 2009 - May 2012) titled "**A Qualitative Study of Set Differential Equations involving Causal Operators with Memory**" and another from NBHM (Feb.2012-Feb.2015)   titled "**A Qualitative study of Graph differential equations and Matrix differential Equations**" have been completed.

14 books have been published by the members of GVP-LIAS since its inception. This includes **research monographs, felicitation volumes, and proceedings** of the conferences as well as **books published in native languages Telugu and Marathi**.

During the year 2014, Prof. **S. G. Deo** published the Marathi book "*Koshvangmaya Vichar and Vyavhar*" by Diamond Publication, Pune, First edition, published in 2014.

   Over 100 research papers have been published by the members of GVP-LIAS during 2007-2015 in refereed international journals in the areas of differential equations, fractional calculus, and computational mathematics.

   In short, GVP-LIAS is extremely active and is continuously working and interacting with eminent researchers of several countries.

Further Detailed Progress/Work During 2014-2015

In addition to the information given in the foregoing overview, following are the additional information of GVP-LIAS during Oct 2014 ─ Jan 2016.

Professor **S.K. Sen** (Resource Person), GVP-LIAS offered 3-week intensive course

Applicable Numerical Methods with Matlab

during April 20, 2015 to May 08, 2015 organized in collaboration with the Department of Electronics and Communication Engineering, GVPCE.
   Dr. Sen gave lectures as well as hands on exercises. Besides, Dr. Sen conducted Computer Lab sessions daily, in which real-world problems were solved by all the (masters) students. He also conducted a 2-hour written exam as well as daily Matlab assignments (including home ones) to evaluate the performance of the students and measure their degree of learning/conceptual clarity. The course was well-received by the students and concerned faculty.

Professor **S.K. Sen** (Resource Person), GVP-LIAS offered 2-week intensive course

Applicable Linear Programming and Algebra: Mathematical Concept and Computation with Matlab

during Dec 07-19, 2015 organized in collaboration with the Department of Electronics and Communication Engineering, GVPCE. Dr. Sen gave lectures as well as hands on exercises. Besides, Dr. Sen conducted Matlab Computer Lab sessions daily, in which real-world problems were solved by the participants (masters students and faculty). The participants have been given 5 Assignments which examine their mathematical concepts as well as computational and programming skill (which attempt to optimize both computational and storage complexities.
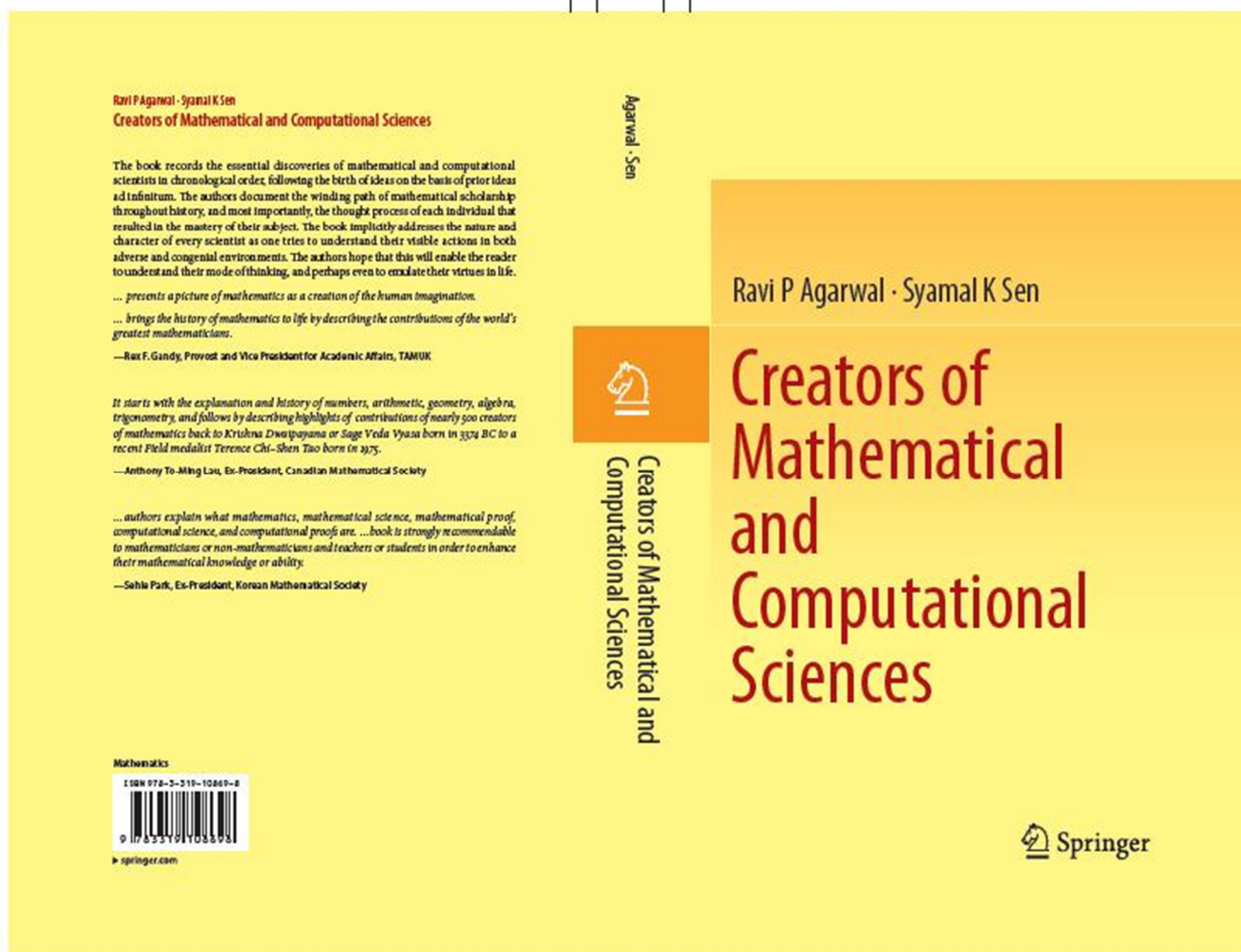
Project Proposal to DST GVP-LIAS had submitted a 3-year research project proposal on *Fractional Versus Conventional Calculus: Theoretical Aspects, Computational Error, Complexity, and Scope with Matlab* to DST (Department of Science and Technology), Govt. of India. The project has been now recast on the new format sent to us by DST according to their revised requirements. The

principal investigator will be Dr. **J.V. Devi**, Associate Director of GVP-LIAS while the co-investigators will be Dr. **R.V.G. Ravi Kumar**, the Head of Mathematics, GVPCE, and Dr. **S.K. Sen**, Director of GVP-LIAS. The project is under review.

Publications

Research Monograph

Ravi P. Agarwal and **Syamal K. Sen**, **Creators of Mathematical and Computational Sciences**, Pp. xx, 495, **Springer**, New York, December 2014.

Scientific cum Philosophical Research Article

Syamal K. Sen, **Extraordinary mental abilities of Swami Vivekananda: A scientific explanation**, **Vedanta Kesari Centenary Publication** (Book) "**Manifesting Inherent Perfection: Education for Complete Self-development**", December 2014, 441-449.

Other Research Publications

S.K. Sen, **Fast Computation: Digital Versus Living Computers and Vedic Arithmetic (Invited Talk),** Student Workshop on "Techniques on fast computing – Vedic approach" held in 28th- 29th November 2014 organized by GVP-LIAS in association with Department of Mathematics, GVP College of Engineering, Visakhapatnam, 1-13.

S.K. Sen, **Fast computation: Digital versus living computers and Ramanujan** (Invited talk), Souvenir, National Conference on "Ramanujan's Works & Current Trends in Computational Mathematics", GVP College of Engineering, Visakhapatnam, Dec. 22-23, 2014, P. 31 (Abstract).

N. Ch. N. Suresh, **Linear Interpolation with Matlab for Nonlinear BVP in Membrane Theory**, paper presented in the National Conference on "Ramanujan's Works & Current Trends in Computational Mathematics" GVPCE, Visakhapatnam, Dec 22-23, 2014.

N.Ch.N. Suresh, S.K. Sen, and J.V. Devi, **Nonlinear singular BVP in circular membrane: Interpolation based fail-proof Matlab solver**, Proc. 60th Congress of ISTAM held at Malaviya Institute of Technology, Jaipur, Dec 16-19, 2015.
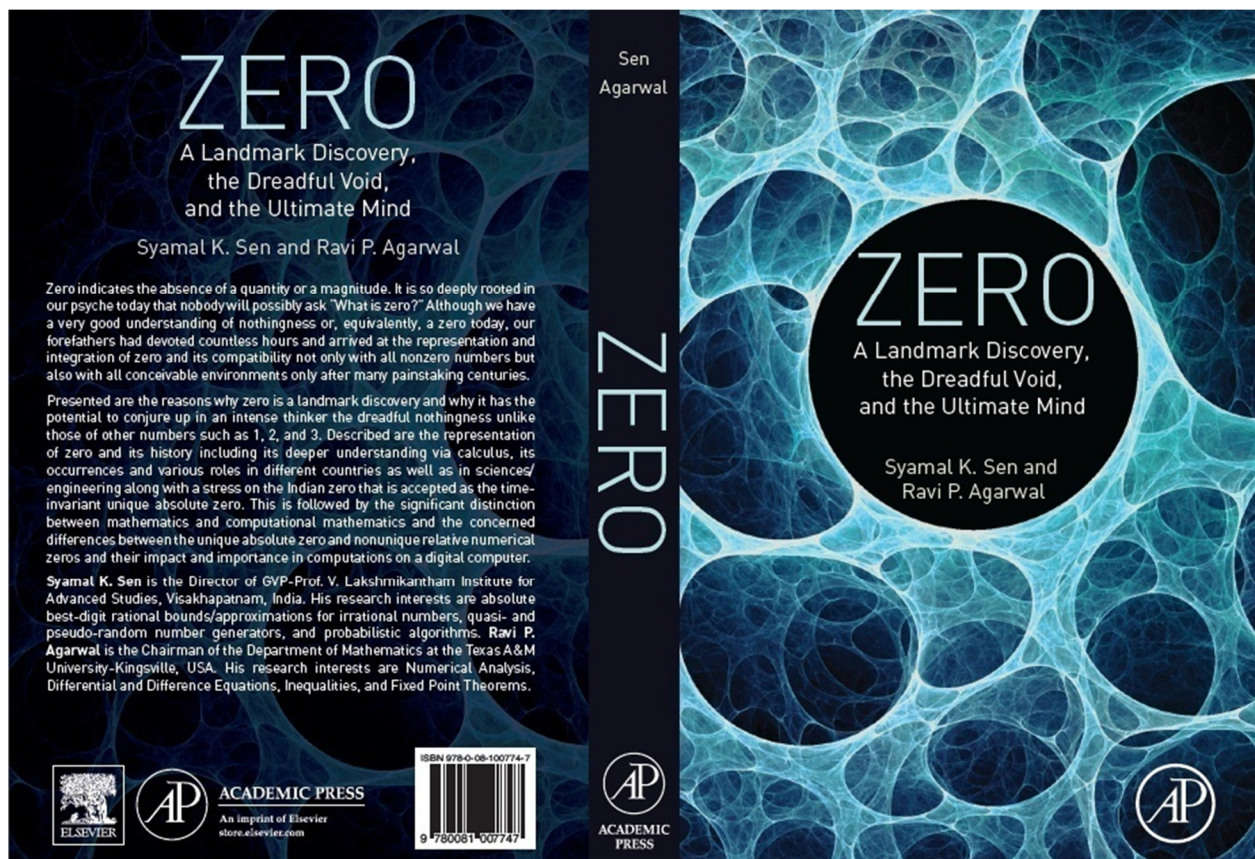
S.K. Sen, **Ramanujan and Numbers**, in: *A Brief Collection on Ramanujan's Works: Contributed by Prof. S.K. Sen and Prof. Pankaj Srivastava*, Souvenir, National Conference on Ramanujan's Works & Current Trends in Computational Mathematics, Dec. 22-23, 2014, 43-44.

V. Somaraju, A demonstration lecture on **SIMULINK Analysis for Problems in Fluid Dynamics** is given in the National Conference on "Ramanujan's Works and Current Trends in Computational Mathematics" in our institute, Dec 22-23, 2014 in connection with Srinivasa Ramanujan's birth day celebrations.

S.K. Sen, **Natural mathematics, computer mathematics, and mathematics: Scope in engineering computation**, **Nonlinear Studies, 21**, No. 2, pp. 309-318, 2014.

S.K. Sen and R.P. Agarwal, **Zero: A Landmark Discovery, the Dreadful Void, and the Ultimate Mind**, Academic Press, New York, 170 Pages, Nov. 2015.

E.E. Escultura, **The leap from the traditional to the new science**, **Nonlinear Studies**, **21**(2), 2014, 283–291.

E.E. Escultura, **The physics of the mind**, The Journal of the Science of Healing Outcomes, **6**(24), 2014, 6 – 19.

E.E. Escultura, **Is Human Activity Linked to Climate Change? Atmospheric and Climate Sciences**, **4**(2), April 2014, 305 – 316.

J. V. Devi, N.Giribabu, **On Hybrid Caputo Fractional Differential Equations with Variable Moments of Impulse, European Jounal of Pure and Applied Mathematics**, **7**, No. 2, 2014, 115-128 ISSN 1307-5543 – www.ejpam.com

J.V. Devi, F.A. McRae, and Z. Drici, **Existence result for periodic boundary value Problem of set differential equations using Monotone iterative technique**, **Communications in Applied Analysis 19** (2015), 245–256

J.V. Devi, F.A. McRae, and Z. Drici, **On the comparison principle and existence results for terminal value problems**, **Nonlinear Studies, 21**, No. 2, 265-278, 2014.

J.V. Devi, R.V.G. Ravi Kumar, **Modeling the Prey Predator Problem by a Graph Differential Equation, European Journal of Pure and Applied Mathematics 7**, No. 1, 2014, 37-44, ISSN 1307-5543 – www.ejpam.com

J.V. Devi, M.P.K. Kishore, and R.V.G. Ravi Kumar **On existence of component dominating solutions for fractional differential equations, Nonlinear Studies, 21**, No. 1, 45-52, 2014.

J.V. Devi, S. Srinivasa Rao. I.S.N.R.G. Bharat Periodic boundary value problem for graph differential equations and its associated matrix differential equations", Malaya Journal of Mathematik. (Accepted), 2014.

I.S.N.R.G. Bharat, R.V.G. Ravi Kumar **Generalized Quasilinearization for graph differential equations and its associated matrix differential equations**, **Global Journal of Mathematical Sciences**. **2**. 49-53, 2015.

S. Srinivasa Rao, R.V.G. Ravi Kumar **Existence Results for graph differential equations and its associated matrix differential equations**, **Global Journal of Mathematical Sciences**, **2**, 107-110, 2015.

I.H. Nagaraja Rao and B. L.V. Vinay Kumar, **Results Concerning cyclic chromatic numbers of graphs**, **Int. Jour. of P2P Network Trends and Technology**, **9**, 2014, 23-28.

I.H. Nagaraja Rao and G. Venkatrao, **Common fixed point theorems in Menger's Space for six self-maps using an implicit relation, Bull. Int. Mathematical Virtual Institute**, **4**, 2014, 89-96.

I.H. Nagaraja Rao, S. Rajesh, and G. Venkatrao, **Common fixed point theorems in Quasi-Gauge space for six self-maps'', Int. Jour. of Mathematical Trends and Technology**, **5**, 2014. 156-167.

I.H. Nagaraja Rao and K.V.S. Sarma, **On the fourth Zagreb Index of a Graph**, **Int. Jour. Math. Archive**, **5**(2), 2014, 1–6.

S.V.S. Raju and I.H. Nagaraja Rao, **Complementary nil vertex edge dominating sets**, **Proyececiones, Jour. of Math.**, **34**, 2015, 1-14.

Prof. **R. G. Marshall** gave an intensive course on **Design of Software Metrics for Effective Software Refactoring** with hands on exercises during Dec 29, 2015 – Jan 02, 2016. The course was organized by Department of Information Technology and Department of Computer Science and Engineering in association with GVP-LIAS. This course was attended by engineering and science faculty and students of several engineering and degree colleges and was well-received.

(a) Ph.D. research Supervision by J.V. Devi

Prof. J.V. Devi has been supervising 8 Ph. D. research students belonging to several academic institutions in and around Visakhapatnam. Besides 3 newly (in 2014) joined research students, she has been guiding the following 5 students.

(i)   Ch. V. Sreedhar, Asst. Prof., Dept. of Mathematics, GVPCE, Visakhapatnam,
(ii)   N. Ch. N.Suresh, Asst. Prof., Dept. of Mathematics, GVPCE, Visakhapatnam,
(iii) S. Nagamani, Lecturer, V.S. Krishna Govt. Junior College, Visakhapatnam,
(iv)   Radhika, Lecturer, GVP Degree College, Visakhapatnam, and
(v)   Krishna Sastri, Asst. Prof., Dept. of Mathematics, M.V.J.R. Engg. College, Vijayanagaram.

(a)   Ph.D. Research Guidance by I.H. Nagaraja Rao

(i) Mr.G.Venkatarao (Assoc. Prof., Sri Prakash College of Engineering, Tuni) submitted thesis (Functional Analysis) to Andhra University and the Ph.D. degree is awarded to him on May 29, 2015.

(ii) Mr. K.V.S. SARMA (Assoc. Prof., Regency Institute of Technology, Yanam) submitted Ph.D. thsis (Graph Theory) to Dravedian University, Kuppam and the degree in awarded to him on July 13, 2015.

(iii) Mr. R.Vasubabu (Asst. Prof., Vishnu Engineering College, Bhimavaram) submitted Ph.D thesis (Algebra) to Andhra University and the degree has been awarded to him on Dec 08, 2015.

(b) Ph.D. Research Guidance by S.K. Sen and J.V. Devi

S.K. Sen along with the official Ph.D. research guide J.V. Devi has been supervising N. Ch. N. Suresh, Asst. Professor, Department of Mathematics, GVPCE in the area of computational circular membrane. One paper has been completed and presented in a national conference in GVPCE while another is nearing completion for an international conference.

(c) Ph.D. Research Guidance by V. Somaraju (Senior Professor of GVP-LIAS till 2015)

V. Somaraju, The two faculty members, Mr. B. Satyanarayana and Mr. Jagadish from VIT (Vellore Institute of Technology) University, Vellore have almost completed their doctoral work under his supervision and are expected to submit before April 30, 2016.

Endowment Lectures /Invited talks by I.H. Nagaraja Rao

I.H. Nagaraja Rao, Cosmetics in Mathematics, in particular in Algebra and Analysis XXIV Congress of A.P Society of Mathematics, during Dec 10-12, 2014, held at Vignan University, Guntur (**Endowment lecture**).

I.H. Nagaraja Rao, On highly composite numbers and on the theory of partitions related to Ramanujan's work, National Conference on "Ramanujan's works and current trends in Computational Mathematics", Dec 22-23, 2014 held at G.V.P-LIAS, GVP College of Engineering (A), Visakhapatnam (**Invited Talk**).

I.H. Nagaraja Rao, A survey of szeged-index of graphs at the National Conference on Recent Developments in Mathematical Sciences held in Vignana Bharati Institute of Technology (VBIT), Hyderabad held on Dec 11-13, 2015 I(**Invited Talk)**.

Work in Progress/Essentially Completed by V. Somaraju

V. Somaraju, Lecture notes for the course on ' Advanced Computational Methods' that he has been teaching for M. Tech. students of Thermal Engineering and CAAD (under preparation). It is proposed to add a section on 'Computational Fluid Dynamics' also.

V. Somaraju, Lecture notes that he has been preparing for students of Engineering and Applied Sciences (under preparation).

V. Somaraju, Lecture notes for topics such as (i) Linear Algebra and Differential Equations, (ii) The Sturm- Liouville Problem and Fourier Series, (iii) Series Solutions for Ordinary Differential Equations, (iv) Difference Equations and Z-transforms, and (v) Applications of Differential and Difference Equtions is ready in typed form.

V. Somaraju, Matlab programs and SIMULINK programs are developed for several important problems of physics and engineering.

Our Vision

To establish a Research Centre where the main purpose of its members is to conduct and foster original cutting edge research in areas of mathematical and computational sciences useful in solving real-world problems via interdisciplinary approach for the benefit of the mankind.

Our Mission

To make the institute an international research centre in Nonlinear Studies pervading Mathematical and Computational Sciences, which is capable of instilling self-confidence and research temperament among faculty and students culminating in original research publications (including research monographs) in application areas of immediate importance such as Cyber Security and Big Data, as well as Computational Error and Complexity of Algorithms.

Name & Designation: Syamal Kumar Sen, Director, GVP– Prof. V. Lakshmikantham Institute for Advanced Studies.

Research Interest: Computational Science/Mathematics

Phone: 2739507 Extension: 417

Email: sksenfit@gmail.com

Degree: Ph.D. (Engg.), Discipline: Applicable Computational Mathematics/Science, Year: 1973.

Experience (Major Appointments)

•Former Professor of Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore for 9 years (1996-2004)

•Former Professor of Florida Institute of Technology, Department of Mathematical Sciences, Florida Institute of Technology, USA for 9 years (2004-2012)

•Former Indo-US Fulbright Fellow for Teachers (1991)

Professional Achievements

 (i) S.K. Sen, Principal Investigator: IP Modeling for Optimal Growth of Thin Films: Sponsored by Florida Solar Energy Center (FSEC), University of Central Florida, Cocoa, Florida, July 01, 2006-June 30, 2007.

(ii) S.K. Sen, Principal Investigator: Efficiency of Solar Cells: Making Modeling More Attractive to Experimentalists, Sponsored by Florida Solar Energy Center (FSEC), University of Central Florida, Cocoa, Florida, July 01, 2007-June 30, 2008.

(iii) Participated and gave invited lectures in several international conferences in India and abroad.

Publications Over 200 research articles besides 8 research monographs/books (by Springer, Elsevier, Academic Press, Cambridge Scientific Publishing, Affiliated East-West Press, and others) and several book chapters.