

Faculty Profile

1. Full name in Block letters : **Dr. K.THIRUSANGU**
2. Contact Information : Assistant Professor of Mathematics
School of Mathematics
Anna University Chennai
Guindy,
Chennai – 600 025, INDIA
Phone Office : 044 22203308
Residence : 044 22276165
E-mail : ktsangu@yahoo.com
3. Qualifications : M.Sc., M.Phil., Ph.D.,
4. Teaching Experience : 19 Years 6 months
5. Courses Taught at :
 - **Under Graduate level** : Algebraic Structures, Differential Calculus, Integral Calculus, Vector Analysis, Analytical Solid Geometry, Differential Equations and Graph Theory.
 - **Post Graduate level** : Algebra, Differential Geometry, Differential Equations, Topology, Graph Theory and Discrete Mathematics.
6. Area of Research : Petri nets, Algebraic aspects of Marked Graphs, Graph Theory, Tree Automata Theory *and* Applications of Fuzzy Models in Social problems.
7. Research Guidance : Currently guiding 7 Ph.D students
8. Publications :

THE LIST OF RESEARCH PUBLICATIONS

In National and International Journals

- 1) **K.Thirusangu** (*with* K.Rangarajan): A note on the construction of marked graphs, Information Processing Letters. Vol.55, No. 4, 211 - 215, (1995).

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- 2) **K. Thirusangu** (*with* K.Rangarajan): The construction of augmented marked graphs, Journal of IETE, 42, No.3, 149-154, (1996).
- 3) **K.Thirusangu** (*with* K.Rangarajan): Marked Graphs and Euler Graphs, Microelectronics and Reliability 37, NO.2, 225-235,(1997).
- 4) **K. Thirusangu** (*with* K.Rangarajan): Marked Graphs and Hamiltonian Graphs, Microelectronics and Reliability 37, NO.8, 1243-1250, (1997).
- 5) **K.Thirusangu**, (*with* D. Ranganayakulu and K.Rangarajan): Marked Graphs and p-Groups, Acta Ciencia Indica, Vol. XXVII, NO. #, 321- 328, (2001).
- 6) **K.Thirusangu**, (*with* T.Pathinathan, and Mary Jhon): On School dropouts of School Children – A Fuzzy Approach: Acta Ciencia Indica , Vol. XXXI M,No.4, 1279 – 1299 (2005)
- 7) **K.Thirusangu**, (*with* T.Pathinathan, and Mary Jhon): “A Mathematical Approach to Issues which Increase Dropouts in School Education”. Ind. Journal of Millennium Development studies- An International Journal, Vol 1, No.2, 243-250 (2006).
- 8) **K.Thirusangu**, (*with* R.Arumugham, D.G.Thamos and N.G.David): ,Reachability graphs of Petri nets and graph grammars: Far East Journal of Mathematical Sciences, Vol.23, No.2, 193-200, (2006)
- 9) **K.Thirusangu** (*with* R.Arumugham and K. Balasangu) : Regular Picture Languages and Petri nets (Acta Ciencia Indica , Vol. XXXIII, (2007)
- 10) **K.Thirusangu**, (*with* T.Pathinathan, and Mary Jhon): School dropouts : breeding ground for exploited child labourers – a mathematical approach : Far East Journal of Mathematical Sciences, Vol. 25, No.1, 25-36, (2007)
- 11) **K.Thirusangu**, (*with* K.Balasangu and V.Rajkumar Dare): A Fuzzy mathematical model approach on the health hazards of the agriculture labourers “Acta Ciencia Indica” (To appear), 2007 .

In International conferences

- 1) **K.Thirusangu** (*with* K.Rangarajan and R. K. Shyamasundar) : On chip firing games in Graphs , **Proceedings of the International Workshop on Parallel Image Processing and Analysis – Theory and Application**, 30 - 312,(1999).
- 2) **K.Thirusangu** (*with* D.Ranganayakulu and K. Rangarajan): Structural Analysis of Graphs – Siphon trap approaches, **Proceedings of the**

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- International conference** on Image Analysis in material and life science, IGCAR, Kalpakkam, Oxford & IBH Publishers, 61-69,(1999).
- 3) **K.Thirusangu**, (*with* D. Ranganayakulu and K.Rangarajan): Marked Graphs and P- Groups, **Proceedings of the International conference** on Graph connections, Cochin University of Science & Technology , Allied Publishers, 115-119, (1999).
 - 4) **K.Thirusangu**, (*with* K.Balasangu and V.Rajkumar Dare): On Tree Automata and Petri Nets, **Proceedings of the International Conference** on Cybernetics and Information Technologies, Systems and Applications (CISTA), USA, 2005.
 - 5) **K.Thirusangu**, (*with* T.Pathinathan, Arul Joseph and Mary John): On Tensions and causes for School Dropouts – An Induced Linked Fuzzy Relational Mapping (ILFRM) Analysis, **Proceedings of the 11 th International Conference** on Fuzzy Theory and Technology (FTT-2006), Kaohsiung, Taiwan . 2006.
 - 6) **K.Thirusangu**, (*with* R. Rajeswari), Marked graphs and Symmetric groups, **Proceedings of the International Conference** on Mathematical Modeling and Simulation, Sathyabama University, Chennai, India, (2007).

In National Conferences

- 1) **K. Thirusangu** (*with* K.Rangarajan): A Petri net approach for finding fundamental circuits in a Graph, **Proceedings of the National Symposium** on Mathematical methods and applications, Indian Institute of Technology, Chennai, (1993).
- 2) **K.Thirusangu** (*with* K. Rangarajan): On the construction of two subclasses of Petri nets, **Research Volume 2**, Madras Christian College, Chennai, 51-62, (1994).
- 3) **K.Thirusangu** (*with* K. Rangarajan): on the construction of Marked graphs A comparison, Presented in The seminar on Recent Trends in Mathematics, Chennai, (1995).
- 4) **K.Thirusangu** (*with* K. Rangarajan): Polly Cracker Public Key Cryptosystem based on marked graphs, **Proceedings of the National Seminar** on Mathematical Modeling and Computer simulation of real life situations, Tirunelveli, 195-203,(1996).
- 5) **K.Thirusangu** (*with* K.Rangarajan) : Petri net languages and Tree acceptors, **Proceedings of the Sixth National Seminar** on Theoretical Computer Science, Jaipur, Allied Publishers, 387, (1996).

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- 6) **K.Thirusangu** (*with* K.Rangarajan): Marked Graphs and Hamiltonian graphs, **Proceedings of the National Workshop** on Graph Theory and Applications, Tirunelveli, Tata McGraw Hill, 207-222, (1996).
- 7) **K.Thirusangu** (*with* K.Rangarajan) : Marked Graphs and Spanning trees of directed graphs, **Proceedings of the Seventh National Seminar** on Theoretical Computer Science, Chennai, C40-C44, (1997).
- 8) **K.Thirusangu**, (*with* D.Ranganayakulu and K.Rangarajan): Marked graphs and antirected Hamiltonian graphs, **Proceedings of the National Symposium** on Mathematical methods and applications, Indian Institute of Technology, Chennai, (1997).
- 9) **K.Thirusangu**, (*with* D.Ranganayakulu and K.Rangarajan): Marked graphs and Abelian Groups, **Proceedings of the Eight National Seminar** on Theoretical Computer Science, Bhubaneswer, (1998).
- 10) **K.Thirusangu**, (*with* D.Ranganayakulu and K.Rangarajan): Marked graphs and line graphs, **Proceedings of the National Seminar** on recent Trends in Algebra and its Applications, Annamalai University, 183-195, (1999).
- 11) **K.Thirusangu**, (*with* R.Arumugham): Implementation of Construction of marked graphs, Presented in **National Seminar** on Applications of Mathematics, Gandhigram Deemed University, (2003)
- 12) **K.Thirusangu**, (*with* R.Arumugham, D.G.Thomas and N.G. David): Regular Picture Languages using Petri Nets and Graph Grammars, Presented in **National Seminar** on Mathematical Modeling and Applications, Deemed University, Bhopal (2004).
- 13) **K.Thirusangu** (*with* R.Arumugham, D.G.Thomas and N.G.David): On Two Dimentional Regular Picture languages using Petri Nets and Graph Grammars, **Proceedings of the National Seminar** on Graph Theory and Applications, Allied Publishers, (2004)
- 14) **K.Thirusangu**, (*with* R.Arumugham): Three Dimentional Regular Picture Languages - A Petri Net approach. Presented in Seminar On Pure and Applied Mathematics, S.I.V.E.T College, Chennai, (2005).
- 15) **K.Thirusangu** (*with* K.Balasangu): On T-Hyphergraphs, Presented in Seminar on Mathematics and its Applications, SIVET College, Chennai, (2005).
- 16) **K.Thirusangu** (*with* R.Arumugham and K.Balasangu) "Context free picture languages and Petri nets" **Proceedings of the National Symposium** on

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Mathematical Methods and Applications , Indian Institute of Technology, Chennai, (2006).

- 17) **K.Thirusangu** (*with* R.Arumugham and K.Balasangu) "Prefix Closed Regular picture languages and Petri nets" **Proceedings of the National Symposium** on Mathematical Methods and Applications , Indian Institute of Technology, Chennai, (2006).
- 18) **K.Thirusangu** (*with* W.B. Vasantha Kandasamy and T. Subramanian) “ Bi-sub semi groups and its applications to n- Automaton “**Proceedings of the National Seminar** on Algebra and its Applications (2006)
- 19) **K.Thirusangu**, (*with* S.Kannamma, D.G.Thomas and K.Rangarajan): “ Generation of rectangular and hexagonal arrays Using CATPN, **Proceedings of the National Conference** on Intelligent Optimisation Modeling, Deemed University, Gandhigram (2006).
- 20) **K.Thirusangu**, (*with* K.Balasangu and V.Rajkumar Dare): A Fuzzy approach on the analysis of Health Hazards faced by the Agriculture Labourers Due to Chemical Pollutions, Proceedings of the Indian Conference on Intelligent Systems, (Allied Publishers), 123-128, (2007).
- 21) **K.Thirusangu**, (*with* K.Balasangu and V.Rajkumar Dare): A Fresh Look at Tree Automata using Petri Nets, **Proceedings of the Indian Conference** on Intelligent Systems, (Allied Publishers), 259-264, (2007).
- 22) **K.Thirusangu**, (*with* B.Selvam and K.Balasangu): On the causes for school drop outs of handicapped children – A fuzzy analysis using Induced FAM, Presented in Seminar On Recent Trends in Mathematics, S.I.V.E.T College, Chennai, (2007).
- 23) **K.Thirusangu** (*with* R.Arumugham) On Decidability Issues of String Token Petri Nets, Presented in Seminar On Recent Trends in Mathematics, S.I.V.E.T College, Chennai, (2007).
- 24) **K.Thirusangu**, (*with* K.Balasangu and V.Rajkumar Dare): A Fuzzy approach on the health hazards faced by the agriculture labourers Using **Induced BAM**, Presented in Seminar On Recent Trends in Mathematics, S.I.V.E.T College, Chennai, (2007).
- 25) **K.Thirusangu** (*with* T. Subramanian) On N- Groups, Presented in Seminar On Recent Trends in Mathematics, S.I.V.E.T College, Chennai, (2007).

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- 26) **K.Thirusangu**, (*with P.P.Ulaganathan and K.Balasangu*): A Fuzzy approach on the analysis of health hazards faced by the Weavers, Presented in Seminar On Recent Trends in Mathematics, S.I.V.E.T College, Chennai, (2007).
- 27) **K.Thirusangu** (*with R.Arumugham*) Tree Token Petri Nets, Presented in Seminar On Recent Trends in Mathematics, S.I.V.E.T College, Chennai, (2007).
- 28) **K.Thirusangu** (*with T. Subramanian*) On N-Groupoids and their Sub-structures, Presented in Seminar On Recent Trends in Pure and Applied Mathematics, S.I.V.E.T College, Chennai, (2007).
- 29) **K.Thirusangu** (*with K. Balasangu and V.Rajkumar Dare*): Analysis of Socio Economic Position of The HIV / AIDS Patients Using Induced FCM **Proceedings of the National Conference on Recent Trends in Science & Communicative English, Bharath University, Chennai, (2007).**
- 30) **K. Thirusangu**, (*with K. Balasangu , V.R. Dare and K.S. Sudhakhar*): The analysis of Health Hazards faced by the Agriculture Labourers Due to Chemical Pollutions Using Induced FCM , **Proceedings of the National Conference on Recent Trends in Science & Communicative English, Bharath University, Chennai, (2007).**
- 31) **K.Thirusangu** (*with W.B. Vasantha Kandasamy and T. Subramanian*) Special class of pseudo automaton **"Proceedings of the National Seminar** on Emerging Trends in Automata, **Allied Publishers, (2007)**
- 32) **K.Thirusangu** (*with W.B. Vasantha Kandasamy and A.Praveen Prakash*) " The Problems faced by people with disabilities – A fuzzy analysis **"Proceedings of the National Seminar** on Emerging Trends in Automata, **Allied Publishers, (2007)**
- 33) **K.Thirusangu**, (*with K.Balasangu and V.Rajkumar Dare*): A BAM AND IBAM Model approach on the health hazards of the agriculture labourers **"Proceedings of the National Seminar** on Emerging Trends in Automata, **Allied Publishers, (2007)**
- 34) **K.Thirusangu**, (*with R.Rajeswari*): A Note on Symmetric Groups and Marked graphs **"Proceedings of the National Seminar** on Recent Trends in Applied Mathematics, Annamalai University (**2008**).

9. Research projects: nil
10. Books : Authored a text book on “ Algebra “, Balaji Publications, Chennai.
11. Awards : Awarded **GOLD Medal** in M.Sc, Mathematics for having **First Rank** in the University Examinations.
12. Conferences:

a) Organized Seventh National Seminar on Theoretical Computer Science in Madras Christian College, Chennai, 1997.

b) THE LIST OF CONFERENCES ATTENDED.

- 1) National Seminar on Graph Theory and its Application, Annamalai University, Chidambaram, Jan 5-7, 1993.
- 2) One day Symposium on Mathematical Methods and Applications, Indian Institute of Technology, Chennai Dec 22, 1993.
- 3) National Seminar on Recent trends in Mathematics, Loyola College, Chennai, Feb 25, 1994.
- 4) International Workshop on Algebraic Methods in Complexity Theory, Institute of Mathematical Sciences, Chennai, Dec 11-13, 1994.
- 5) Fourteenth International Conference on Foundations of Software Technology and Theoretical and Computer Science, Institute of Mathematical Sciences, Chennai, Dec 15-17, 1994.
- 6) Fifteenth International Conference on Foundations of Software Technology and Theoretical and Computer Science, Indian Institute of Science, Bangalore, Dec 18-20, 1995.
- 7) National Workshop on Graph Theory and its Applications, Department of Mathematics, Manonmaniam Sundaranar University, Thirunelveli, Feb 21-27, 1996.
- 8) First International Symposium on Parallel and Distributed Artificial Intelligence, University of Hyderabad, July 29-30, 1996.
- 9) Sixth National Seminar on Theoretical Computer Science, Banastali Vidhyapith, Jaipur, Aug 5-8, 1996.

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- 10) Sixteenth International Conference on Foundations of Software Technology and Theoretical and Computer Science, University of Hyderabad, Dec 15-17, 1996.
- 11) Research Seminar in Mathematics, Department of Mathematics, Madras Christian College, Chennai, April 12, 1996.
- 12) Seventh National Seminar on Theoretical Computer Science, Department of Mathematics, Madras Christian College, Chennai, June 11 – 14, 1997.
- 13) National Seminar on Graph Theory and its Application, Annamalai University, Chidambaram, Jan 5-7, 1993.
- 14) One day Symposium on Mathematical Methods and Applications, Indian Institute of Technology, Chennai Dec 22, 1993.
- 15) National Seminar on Recent trends in Mathematics, Loyola College, Chennai, Feb 25, 1994.
- 16) International Workshop on Algebraic Methods in Complexity Theory, Institute of Mathematical Sciences, Chennai, Dec 11-13, 1994.
- 17) Fourteenth International Conference on Foundations of Software Technology and Theoretical and Computer Science, Institute of Mathematical Sciences, Chennai, Dec 15-17, 1994.
- 18) Fifteenth International Conference on Foundations of Software Technology and Theoretical and Computer Science, Indian Institute of Science, Bangalore, Dec 18-20, 1995.
- 19) National Workshop on Graph Theory and its Applications, Department of Mathematics, Manonmaniam Sundaranar University, Thirunelveli, Feb 21-27, 1996.
- 20) First International Symposium on Parallel and Distributed Artificial Intelligence, University of Hyderabad, July 29-30, 1996.
- 21) Sixth National Seminar on Theoretical Computer Science, Banastali Vidhyapith, Jaipur, Aug 5-8, 1996.
- 22) Sixteenth International Conference on Foundations of Software Technology and Theoretical and Computer Science, University of Hyderabad, Dec 15-17, 1996.
- 23) Research Seminar in Mathematics, Department of Mathematics, Madras Christian College, Chennai, April 12, 1996.

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- 24) Seventh National Seminar on Theoretical Computer Science, Department of Mathematics, Madras Christian College, Chennai, June 11 – 14, 1997.
- 25) Eighteenth Conference on Foundations of Software Technology and Theoretical and Computer Science, Institute of Mathematical Sciences, Chennai, Dec 17-19, 1998.
- 26) Nineteenth International Conference on Foundations of Software Technology and Theoretical Computer Science, Indian Institute of Technology, Chennai, Dec 15-17, 1999.
- 27) One day Symposium on Mathematical Methods and Applications, Indian Institute of Technology, Chennai Dec 23, 1997.
- 28) Eighth National Seminar on Theoretical Computer Science .Bhubaneswar, June 11-14, 1998.
- 29) International Workshop on Molecular Computing, Indian Institute of Technology, Chennai, Dec 13 – 15, 1998.
- 30) Sixth National Workshop on Parallel Image Processing and Analysis, Theory and Application, Madras Christian College Chennai, Jan 15 -16, 1999.
- 31) National Seminar on Recent trends in Algebra and its Application, Annamalai University, Chidabaram, Aug 9-10, 1999.
- 32) Seminar on Mathematics and its Applications, S.I.V.E.T College, Chennai (2005).
- 33) Research Seminar on Mathematics and Theoretical Computer Science, Madras Christian College, Chennai, (2005).
- 34) Seminar On Recent Trends in Pure and Applied Mathematics, S.I.V.E.T College, Chennai, (2007).

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