




SRM Valliammai Engineering College

SRM Nagar, Kattankulathur-603203, Kancheepuram District, Tamil Nadu

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Department of Mechanical Engineering

PERSONAL DETAILS

Name :	Dr. K. SIVAKUMAR		
Designation :	ASSOCIATE PROFESSOR AND HEAD		
Educational Qualification :	D.M.E., B.E., M.E., Ph.D.,		
Experience:	20		
Area of Specialization :	Heat transfer, Solar and CFD.		
Date of Birth :	01/05/1974		
Date of Joining :	17/06/2004		
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EDUCATIONAL DETAILS

S.No	Degree	Branch/Specialization	Institution / University	Year
1	B.E.	Mechanical	Adhiparasakthi Engineering College / Madras University	1997
2	M.E.	Design and production of Thermal Power Equipments	National Institute of Technology [REC], Trichy	2003
3	Ph.D.	Heat Transfer and CFD	Anna University, Chennai.	2015

PROFESSIONAL SOCIETY MEMBERSHIPS

1. Indian Society of Technical Education: Life Member
2. International Association of Engineers (IAENG)
3. Society of Automotive Engineers [SAE]

PUBLICATION DETAILS

BOOK PUBLISHED:

1. Dr.S.Dineshkumar, Dr.K.Sivakumar, Dr.S.Benjamin Lazarus, Text Books on "Engineering Graphics" ISBN 978-93-80757-66-7, Maruthi Publishers, Chennai – 600049.

PATENT :

1. Application No.: 201941017451 A, "Automatic Removal of Suspended Sediments in Drainage Pipe Line," Provisionally filed 2nd May, 2019 and it published in IPR Journal.
2. Application No.: 201941052771 A "Reinforced Particulate Aluminum Metal Matrix Composite and Process for Making the Same" Provisionally filed 18th December 2019 and it is Published in IPR Journal.

3. Application No. 201941052773 A “Waste Heat into Electricity” Provisionally filed 19th December 2019 and it is published in IPR Journal.

INTERNATIONAL JOURNALS:

To find my Research Publications and International Conferences for the following web site:

<https://scholar.google.co.in/citations?user=lqhzPN0AAAAJ&hl=en>

1. **Sivakumar.K**, Madhu. P, (2021) ‘A holistic frame for environment conscious based material selection and assessment using digraph-based expert system’ Scientific Programming, Article ID 2112683, under publication. (**Impact factor: 1.025**)
2. **Sivakumar.K**, M. Ponnusamy, (2021) ‘Mechanical Strength and Fatigue Fracture Analysis on AL-ZN-Mg Alloy with the Influence of Creep Aging Process’, Advances in Materials Science and Engineering, vol. 2021, Article ID 1899128, 5 pages, 2021. <https://doi.org/10.1155/2021/1899128>. (**Impact factor: 1.726.**)
3. **Sivakumar.K**, M.Kavitha, (2021) ‘Parameters Optimization of Dissimilar Friction Stir Welding for AA7079 and AA8050 through RSM’ Advances in Materials Science and Engineering, Vol.2021, Pages 8, DOI: 10.1155/2021/9723699. (**Impact factor: 1.726.**)
4. **Sivakumar.K**, Sampathkumar.T, (2021) ‘Effect of rib arrangements on the flow pattern and heat transfer in internally ribbed rectangular divergent channels’ **Materials Today: Proceedings, Elsevier**, 46, 3379-3385, DOI: 10.1016/j.matpr.2020.11.548. (**Impact factor : 0.567**)
5. **Sivakumar. K**, Rajendra Prasad. A, 2021 ‘Experimental Investigation On Emissivity Of 75Ni-25Cr Alloy Coated Aluminium Surface For The Purpose Of Solar Applications’, **Materials Today: Proceedings, Elsevier**, 37, 1320-1323 DOI: 10.1016/j.matpr.2020.06.500 (**Impact factor : 0.567**)
6. **Sivakumar. K**, J.P. Ramesh, 2020 ‘Investigation of wake aerodynamics in bluff body for UAV application’ **Journal on Mechanical Engineering (JME), i-manager’s Journal on Mechanical Engineering**, 10(2), 27-34. (**Impact factor : 2.9**)
7. **Sivakumar.K**, Sampathkumar.T (2019) ‘Metallurgical and mechanical characterization of TiCN / TiAlN and TiAlN/ TiCN bilayer nitride coatings’ **Surface and Interfaces, Elsevier**, Vol.15, pp-256-264. (**Impact factor: 3.724**).
8. **Sivakumar.K**, Sampathkumar.T, (2019) ‘Machinability Studies of TiAlN- / AlCrN -Coated and Uncoated Tungsten Carbide Tools on Turning EN25 Alloy Steel’ **Lecture Notes in Mechanical Engineering, Springer Publications**, Vol.1, pp.-213-221.
9. **Sivakumar.K**, Natarajan.E and Kulasekharan.N, (2018), ‘Computational Investigations in Rectangular Convergent and Divergent Ribbed Channels’, **International Journal of Turbo & Jet Engines, De Gruyter**, Vol.35 (2), pp.193-201. (**Impact factor: 1.082**).
10. **Sivakumar.K**, Sampathkumar.T,(2018) ‘Characterization Of TiCN Coating Synthesized by The Plasma Enhanced Physical Vapour Deposition Process On A Cemented Carbide Tool’, **Surface Review and Letters, World Scientific**, Vol.25 Issue No.08.1950028 pp.1-11. (**Impact factor: 1.152**).

11. **Sivakumar.K**, Natarajan.E and Kulasekharan, N (2016), 'Numerical Simulation on Rectangular Divergent Ribbed Channels', *ARPJ Journal of Engineering and Applied Sciences*, Vol.11, no.18, pp.-11023-11030. **(Impact factor : 0.765)**
12. **Sivakumar, K**, Natarajan, E and Kulasekharan, N 2015, 'Experimental Study of Developing Turbulent Flow and Heat Transfer in Ribbed Convergent / Divergent Rectangular Ducts', *Thermal Science*, vol.19, no.6, pp.2219 -2231. **(Impact factor: 1.625)**.
13. **Sivakumar, K**, Natarajan, E and Kulasekharan, N (2014), 'Experimenal Studies on Turbulent Flow in Ribbed Rectangular Convergent Ducts with Different Rib Sizes', *International Journal of Heat and Technology*, vol.32, no.1, pp. 79-85. **(Impact factor :1.9)**.
14. **Sivakumar, K**, Natarajan, E and Kulasekharan, N (2014), 'Heat transfer and pressure drop comparison between smooth and different sized rib – roughened divergent rectangular ducts', *International journal of Engineering and Technology*, vol.6, no.1, pp. 263-272. **(Impact factor: 0.672)**.
15. **Sivakumar.K**, Natarajan.E and Kulasekharan. N (2014), 'Influence of Rib Height on Heat Transfer Augmentation – Application to Aircraft Turbines', *International Journal of Turbo & Jet Engines, De Gruyter*, vol.31, no.1, pp. 87-95. **(Impact factor: 1.082)**.
16. **Sivakumar. K**, Natarajan.E and Kulasekharan.N (2014) "Design Optimization of Rib-Roughened Convergent / Divergent Channel to Enhance Turbulent Heat Transfer", *International Journal of Innovative Research in Science, Engineering and Technology*, Vol. 3. SI 1, Pp- 7 -12.
17. **Sivakumar. K**, Natarajan.E and Kulasekharan.N (2013) 'CFD Simulation and Experimental Investigation of Convection Heat Transfer in a Rectangular Convergent Channel with Staggered Ribs', *International Review of Mechanical Engineering*, vol.7, no.3, pp.541-548. **(Impact factor: 0.26, ICV 6.25)**.
18. **Sivakumar. K**, Natarajan.E and Kulasekharan.N (2013): "Influence of Different rib height on Heat Transfer Augmentation in Rectangular Convergent /Divergent Channels with continuous ribs on bottom surface", *ASME Digital Library*, Paper No. GTINDIA2013-3570, pp. V001to2A007, DOI. 10.1115/GTINDIA 2013-3570.
19. **Sivakumar.K**, Natarajan.E and Kulasekharan.N (2012), "Comparative study between experimental work and CFD analysis in a square convergent ribbed duct", *Lecturer Notes in Mechanical Engineering, Springer India 2012*. DOI: 10.1007/978-81-322-1007-8_41.pp 447 -457.
20. **Sivakumar.K**, Natarajan.E and Kulasekharan.N (2012), "Numerical study of turbulent flow and heat transfer in square convergent channel with 90° inline rib turbulator's", *International Journal of Engineering and Innovative Technology*. Vol.1. (3). Pp. 218-224.
21. **Sivakumar.K**, Natarajan.E and Kulasekharan.N (2012), "Gas turbine blade cooling at mid chord region by using rib turbulators – a review", *Journal of Mechanical Engineering (Strojnický casopis)*. Vol.63 (1). pp. 1-16.

PAPER PUBLISHED IN INTERNATIONAL CONFERENCE:

1. **Sivakumar, K. (2019)** Presented a paper titled **“Investigation of Wake Aerodynamics in Bluff Body for UAV Application”** for the International conference on Smart Automation in Computer, Electrical, Electronics and Communication Engineering held during September 6th and 7th 2019, organized by SRM Valliammai Engineering College, SRM Nagar, Kattakulathur- 603203.
2. **Sivakumar.K, (2018)** presented a paper titled **“Machinability Studies of TiAlN/ALCrN coated and uncoated cutting tools on turning EN25 alloy steel”** for the 3rd International Conference on Innovative Design, Analysis & Development Practices in Aerospace and Automotive Engineering [IDAD 2018] held during February 22nd and 24th 2018, organized by Department of Mechanical Engineering, Vel. Tech. University, Chennai, India.
3. **Sivakumar.K, (2017)** presented a paper titled **“Optimal Design of Transverse Ribs in Rectangular Channel for Thermal Performance Enhancement”** for the International Conference on Recent Advances in Mechanical Engineering [ICRAME 2017] held during September 01st and 2nd 2017, organized by Department of Mechanical Engineering, Kingston Engineering College, Vellore, India.
4. **Sivakumar.K, Natarajan.E and Kulasekharan.N (2016)** presented a paper titled **“Numerical Simulation on Rectangular Convergent and Divergent Ribbed Channels”**, for the International conference on Design, Analysis, Manufacturing and Simulation [ICDAMS 2016], held during 7 & 8th April 2016, organized by Department of Mechanical Engineering, Saveetha School of Engineering, Saveetha University, Chennai – 602 105, India.
5. **Sivakumar.K, Natarajan.E and Kulasekharan.N (2013)** presented a paper titled **“Influence of Different rib height on Heat Transfer Augmentation in Rectangular Convergent /Divergent Channels with continuous ribs on bottom surface”**, in The ASME 2013 Gas Turbine Conference (GTINDIA 2013), Collection of technical papers ASME – held during 5 & 6th December, 2013, Bangalore, Karnataka, India.
6. **Sivakumar.K, Natarajan.E and Kulasekharan.N (2014)** presented a paper titled **“Design Optimization of Rib-Roughened Convergent / Divergent Channel to Enhance Turbulent Heat Transfer”**, for 2nd International Conference on Emerging Trends in Energy and Environment, held during 9 & 10th January, 2014. Organized by Department of Mechanical Engineering, Sri Sai Ram Engineering College, Chennai, India.
7. **Sivakumar.K, Natarajan.E and Kulasekharan.N (2013)** presented a paper titled **“Experimental Studies On Developing Turbulent Flow And Heat Transfer In Ribbed Convergent Rectangular Ducts With Two Different Sized Ribs”** for the International Conference on Green Technology in Engineering and Applied Sciences, held during 29 & 30th March 2013, organized by Department of Mechanical Engineering, Adhiparasakthi Engineering College, Melmaruvathur, Tamil Nadu.
8. **Sivakumar.K, Natarajan.E and Kulasekharan.N (2012)** presented a paper titled **“Comparative study between experimental work and CFD analysis in a square convergent ribbed duct ”**, for the International Conference on Emerging Trends in Science, Engineering and Technology, held during 13

& 14th December 2012, organized by Department of Mechanical Engineering, J.J. College of Engineering and Technology, Trichy.

PAPER PUBLISHED IN NATIONAL CONFERENCE:

1. **Sivakumar.K**, (2017) presented a paper titled “**Rib Size Optimization of Roughened Surface to enhance Turbulent Heat Transfer**” for National Conference on Fluid Mechanics [NCFM-2017] held during 27-28th October 2017, organized by Department of Mathematics, SSN College of Engineering, Kalavakkam, Chennai, India.
2. **Sivakumar.K**, Natarajan.E and Kulasekharan.N (2013) presented a paper titled “**Thermal Characterization of Turbulent flow in a Rectangular Convergent Channel with Different Sized square ribs**” for the National Conference on advanced in Mechanical Science (AIMS – '13), held on 2nd march, 2013, and organized by Department of Mechanical Engineering, C. Abdul Hakeem College of Engineering and Technology, Melvisharam. Vellore Dt. Tamil Nadu.
3. **Sivakumar.K**, Natarajan.E and Kulasekharan.N (2013) presented a paper titled “**Experimental Study of Transient Forced Convection Heat Transfer from Convergent channel with various Rib Promoters**” for the National Conference on advanced in Mechanical Science (AIMS – '13), held on 2nd march, 2013, and organized by Department of Mechanical Engineering, C. Abdul Hakeem College of Engineering and Technology, Melvisharam. Vellore Dt. Tamil Nadu.
4. **Sivakumar.K**, Natarajan.E and Kulasekharan.N (2012) presented a paper titled “**Thermal Characterization of Turbulent Flow in Orthogonal Ribbed Square Duct**”, for the National conference on Recent Development in Mechanical Engineering (NCRDMK-2K12), held on 28th March 2012, organized by Department of Mechanical Engineering, Thankavelu Engineering College. Chennai.
5. **Sivakumar.K**, Natarajan.E and Kulasekharan.N (2012) presented a paper titled “**Numerical Study of Turbulent Flow and Heat Transfer in Square Convergent Duct**” for the National conference on Emerging Research and Advances in Mechanical Sciences (ERA-2012), held on 23th March 2012, organized by Department of Mechanical Engineering, Vellammal Engineering College. Chennai.
6. **Sivakumar.K** (2010) presented a paper titled “**Optimum Replacement of Diesel Using Methanol**” for the National Conference on Emerging Research and Advanced in Mechanical Sciences (ERA-2010), held on 26th March 2010, at Vellammal Engineering College. Chennai.
7. **Sivakumar.K** (2009) presented a paper titled “**Alternative fuel in IC engine-Methanol**” for the “National Conference on Evolving Challenges in Renewable Energy Sources (ECRES-09)” at Adhiparasakthi Engineering College, Melmaruvathur. India on 16th April 2009.
8. **Sivakumar.K** (2008) presented a titled “**Engine Performance and Exhaust Characteristics of Dual Fuel Operation in DI Diesel Engine with Methanol**” in a National level Conference on Major Trends in Mechanical Engineering – 2008 (Techcon'08) held on 21st September 2008 at IFET College of Engineering. Villupuram-605108.

RESEARCH AND DEVELOPMENT DETAILS

REVIEWER IN INDEXED INTERNATIONAL JOURNALS:

1. Heat and Mass Transfer, Springer Publications.
2. International Journal of Turbo and Jet Engines, Degruyter publications.
3. Journal of Mechanical Science and Technology (JMST), Springer Publications.
4. Applied Mechanics and Materials (AMM), Trans. Tech Publications.
5. Australian Journal of Mechanical Engineering.

No. of Research Projects Completed	:	NIL
No. of Patents Filed	:	03
No. of Ph.D., candidates guided/guiding	:	02
No of Conferences Convened	:	03
No. of STTP/FDP coordinated	:	06
3.No. of FDP Participated	:	18

GUEST LECTURE:

1. Delivered as Guest speaker for the Anna University sponsored 5 days Faculty Development Programme [FDP] on Thermal Engineering-1, Organized by the Department of Mechanical Engineering of Sri Sai Ram Engineering College in the topic of “**Gas Turbines – Performance and Improvements**” conducted from 28/12/2020 to 4/1/2021.
2. Delivered as Guest speaker for the Anna University sponsored 6 days Faculty Development Programme [FDP] on Finite Element Analysis, Organized by the Department of Mechanical Engineering of Sri Sai Ram Institute of Technology in the topic of “**Application of FEA in Heat Transfer**” held on 22nd November 2019.
3. Delivered and expert lecture in two days Faculty Development Programme on the Course of “**Finite Element Analysis**” organized by the Department of Mechanical Engineering held on 22nd and 23rd June 2016, Valliammai Engineering College.
4. Delivered and expert lecture in two days Faculty Development Programme on the Course of “**Engineering Thermodynamics & Fluid Mechanics and Machinery**” organized by the Department of Mechanical Engineering held on 29th and 30th June 2016, Valliammai Engineering College.

ONLINE CERTIFICATION:

- Successfully completed Five online courses conducted by **NPTEL** [National Programme on Technology Enhanced Learning] funded by the Ministry of HRD, Govt. of India by 1. **Laws of Thermodynamics**, 2. **Introduction to Research**, 3. **Engineering Graphics** 4. **Basics of Finite Element Analysis –I** and 5. **Ethics in Engineering Practice**.

ACHIEVEMENTS:

- I have successfully completed the amount received **Rs. 10,00,000/-** as Grant-in-Aid under the **MODERNISATION AND REMOVAL OF OBSOLESCENCE [MODROB]** scheme of the Title of Project – “DAQ Express and LabVIEW Workstation” in our Thermal Engineering Laboratory from All India Council for Technical Education [AICTE] in the current financial Year 2019-2020.
- **I have received award from Institute of Scholar (InSc) for HOD for the Year Award – 2020.**
- To received best paper titled “**Numerical Simulation on Rectangular Convergent and Divergent Ribbed Channels**”, Presented at the 2nd International conference on Design, Analysis, Manufacturing and Simulation [ICDAMS 2016] held during 7 - 8th April 2016, organized by Department of Mechanical Engineering, Saveetha School of Engineering, Saveetha University, Chennai – 602 105, India.
- I reached **Research Gate Score 13.67** (RG Score is calculated based on the publications in in the field of Thermal Engineering and how other researchers interact with your content on Research Gate).
- Approved Supervisor recognition for Ph.D., / M.S., (By research) to Anna University, Chennai.
- Applied for Technical Field of Proposal for Rs. 22 lakhs from AICTE under Research Promotion Scheme.
- The Research proposal for the topic “Carbon dioxide capture and storage technology for coal based thermal power plants and application of CO₂ to power Generation and Refineries” applied to Science & Engineering Research Board [SERB], New Delhi the total cost of proposal is Rs. 28,78,000/- under Process.
- My Google scholar citation index on 24/3/2022:



Dr. K. Sivakumar

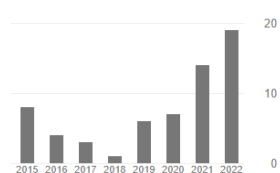
Associate Professor and Head, Department of Mechanical Engineering, Valliammai Engineering College
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[Heat transfer](#) [Turbulent flow](#) [Rib Turbulators](#) [Friction factor](#) [CFD](#)

FOLLOWING

Cited by

	All	Since 2017
Citations	78	51
h-index	6	4
i10-index	4	2

TITLE	CITED BY	YEAR
Parameters optimization of dissimilar friction stir welding for AA7079 and AA8050 through RSM M Kavitha, VM Manickavasagam, T Sathish, B Gugulothu, ... Advances in Materials Science and Engineering 2021	12	2021
Metallurgical and mechanical characterization of TiCN/TiAlN and TiAlN/TiCN bilayer nitride coatings TS Kumar, AV Jebaraj, E Shankar, N Tamiloli, K Sivakumar Surfaces and Interfaces 15, 256-264	12	2019
Heat transfer and pressure drop comparison between smooth and different sized rib-roughened rectangular divergent ducts	10	2014



Co-authors