

Short Profile

S. M. Kulkarni

Professor,
Department of Mechanical Engg.
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Research Interests:

Materials, esp Composites and sandwiches, Processing and Characterization - Composites of recycled materials. Mechatronics and MEMS. Product Development and Prototyping. Modelling and analysis of mechanical systems.

Teaching Interests:

Product Development, Prototyping-virtual and rapid, Mechatronics systems, Microelectromechanical systems – modelling and analysis

Profession experience:

Teaching: 23 Years
Research: 15 Years
Ph. D Guided: 3

Education

Ph. D	2002	Indian Institute of Science, Bangalore
M. E	1989	Bharathiar University
B. E	1985	Mysore University

Publications

Journals –	41
Conferences –	57

Book Chapter

Chapter 6 “**Flexural Behavior of Functionally Graded Sandwich Composite**” in the book Finite Element Analysis - Applications in Mechanical Engineering Ed Farzad Ebrahimi, InTech Publisher ISBN 978-953-51-0717-0

Professional activities

Memberships: ISTE, IE, AMM, MRSI and ISSS
Peer reviewer: Journal of Materials Science, Wear
Ph.D guideship: NITK, Manipal University and VTU
Academic bodies: Board of Studies – Manipal University, Kuvempu University, VTU, SDM Dharwad and BVB Hubli

Awards:

Sir Vithal N. Chandavarkar Award for Best Ph. D thesis.

Funded Projects and Grants

MHRD research and development project on Biocomposites and composite lumber
DST Funding for Infrastructure in Science and Technology (FIST) to establish composite activity centre

Ph. D's completed till date:

1. Navin Karanth, Faculty, Mechanical Engineering, NITK Surathkal
"Modeling and Experimental Studies on Polyvinylidene Flouride (PVDF) for Actuation and Sensory Applications", 2012
2. M. R. Doddamani, Faculty, Mechanical Engineering, BVB College of Engg., Hubli
"Characterization of Functionally Graded Rubber core and their sandwich composites: Experimental and Modelling Approaches", 2012
3. N. S. Mohan, Faculty, Mechanical Engineering, MIT Manipal,
"Experimental Investigations and Theoretical Analysis of Drilling Process in Glass Fibre Reinforced Plastic (GFRP) Composites" 2007

❖ Sponsored Research Projects

Sl. No	Title	Agency	Sanction No. and date	Status
1.	FIST-06 to Strengthen Research and PG teaching facilities in 'Composite Materials' activities	DST	No. SR/FST/ETI-178/2006 dtd.: 18-4-2007	Ongoing
2.	Prototyping and Testing of bio-composite and composite lumber structural components – a study using natural recycled reinforcements (R&D)	MHRD	No.F.26-14/2003.TS. V dtd. 14-1 2004	Completed
3.	Development of Mechatronics Laboratory (TAPTEC), Co-coordinator	MHRD	1997-2000	Completed

Recent Journal Publications

(<http://scholar.google.co.in/citations?hl=en&user=k2wxXJAAAAAJ>)

1. B. Krishna Prabhu, Sanjeev Dudse, and **Satyabodh M. Kulkarni** "Statistical analysis of flexural modulus of cenospheres-reinforced, recycled poly(ethylene terephthalate) using Taguchi method" *Journal of Elastomers and Plastics*, first published on April 11, 2013 as doi:10.1177/0095244313483641
2. M R Doddamani and **S M Kulkarni** "Compressive properties of sandwiches with functionally graded rubber core and jute–epoxy skins" *Bull. Mater. Sci.*, Vol. 36, No. 2, April 2013, pp. 319–328.
3. Munuswamy Selvaraj, **Satyabodh Kulkarni** and Ramamurthy Ramesh Babu, "Analysis and Experimental testing of a built-up composite cross arm in transmission line tower for mechanical performance", *Composite Structures*, 96 (2013) pp 1-7
4. M. R. Doddamani and **S. M. Kulkarni**, "Response of fly ash-reinforced functionally graded rubber composites subjected to Mechanical loading", *Mechanics of Composite Materials* V48, No. 1, March 2012, pp 89-100
5. B Krishna Prabhu, G J Chomal and **S. M. Kulkarni**, "An Investigation on Mechanical and Tribological Properties of recycled Polyethylene terephthalate blends", *International Journal of Applied Engineering*, 2 (2012) pp 181-186
6. Doddamani, M.R., **Kulkarni, S.M.** and Kishore "Behavior of sandwich beams with functionally graded rubber core in three point bending" *Polymer Composites* 32 (10), Oct 2011 pp. 1541-1551
7. Vikram Kamath, Nikhil Ramaswamy, P. Navin Karanth, Vijay Desai and **S.M. Kulkarni**, "Development of an Automated Handwriting Analysis System", *ARNP Journal of Engineering and Applied Sciences* vol 6. No. 9, Sept 2011.

8. Nikhil Ramaswamy, Navin Karanth, **S M Kulkarni** and Vijay Desai, "Modeling of Micropump Performance and Optimization of Diaphragm Geometry". *International Journal of Computer Applications* No. 5, Sept 2011 pp 14-19
9. Ashwin Simha, S. Meenatchi Sundaram and **S.M Kulkarni**, "An Analytical Method to Determine the Response of a Micro Capacitive Pressure Sensor", *Sensors & Transducers Journal*, Vol. 130, Issue 7, July 2011, pp. 118-126, ISSN 1726-5479.
10. Navin Karanth P, Vijay Desai and **S M Kulkarni**, "Dynamic Modeling and Experimental verification of Polyvinylidene Fluoride actuator for a valve-less Micropump", special issue of *International Journal of Earth Science and Engineering*, Vol. 4, No. 4, July 2011 pp 50-55.
11. Navin Karanth P, Vijay Desai and **S M Kulkarni**, "Single and Multilayer Polyvinylidene Fluoride Piezo Film for Force Sensing", special issue of *International Journal of Earth Science and Engineering*, Vol. 4, No. 4, July 2011 pp 33-37
12. Navin Karanth P, Vijay Desai and **S M Kulkarni**, "Characterization of polyvinylidene fluoride piezo diaphragm for fluid pressure sensor application", special issue of *International Journal of Earth Science and Engineering* Vol. 4, No. 4, July 2011 pp 56-62.
13. Nikhil Ramaswamy, Vikram Kamath, P. Navin Karanth, Vijay Desai, **S.M. Kulkarni**, "The Effect of Deviation in Nozzle Diameter on the Pressure Loss Coefficients of Diffuser/Nozzle in a Valveless Micropump", *International Journal of Electronics and Computers*, published by International Science Press, Vol. 3, No. 1 Jan.-June 2011 pp.47-51, ISSN: 0975-3796
14. M. R. Doddamani and **S. M. Kulkarni**, "Dynamic Response of fly ash reinforced functionally graded rubber composite sandwiches – a Taguchi approach", *International Journal of Engineering, Science and Technology* vol 3 No. 1 Jan 2011 pp 166-182

Recent Conference Publications

1. Shivesh Kumar, Sai Deepak Bhimaraju, S. M. Kulkarni, "Interfacing robotic manipulators with Open-source computer Aided Drafting packages for Path-Tracing applications", 4th International Conference on Electronics Computer Technology - ICECT 2012, Kanyakumari, India April 2012
2. Ashwin Simha, S.M Kulkarni, S Meenatchisundaram, and Somesakara Bhat, "A Simple Displacement Function to Determine the Response of a Micro Capacitive Pressure Sensor" International Conf. On Method and Models in Science and Technology (ICM2ST-11) Jaipur, India 19 – 20 November 2011
3. Nikhil Ramaswamy, Navin Karanth, S.M. Kulkarni and Vijay Desai, "Modeling of Micropump Performance and Optimization of Diaphragm Geometry", International Symposium on Devices MEMS Intelligent Systems Communications 2011, 12th -14th April 2011. (ISSN 0975-8887) (ISBN 978-93-80747-80-2)
4. Navin Karanth P, Vijay Desai and S M Kulkarni, "Dynamic Modeling and Experimental verification of Polyvinylidene Fluoride actuator for a valve-less Micropump", International Engineering Symposium, 3-5 Mar 2011, Kumamoto University, Kumamoto, Japan
5. Navin Karanth P, Vijay Desai and S M Kulkarni, "Single and Multilayer Polyvinylidene Fluoride Piezo Film for Force Sensing", International Engineering Symposium, 3-5 Mar 2011, Kumamoto University, Kumamoto, Japan
6. Navin Karanth P, Vijay Desai and S M Kulkarni, "Characterization of polyvinylidene fluoride piezo diaphragm for fluid pressure sensor application", International Engineering Symposium, 3-5 Mar 2011, Kumamoto University, Kumamoto, Japan
7. S.Meenatchisundaram, Dr. S.M. Kulkarni, Dr. P.R.Venkateswaran, Dr. G.Uma, and Dr. M. Umamathy, "Design Analysis and Surface Micromachining Fabrication of Differential Micro Pressure Sensors", Proceedings of International Conference on System Dynamics and

- Control (ICSDC 2010), 19th – 22nd, August 2010, Organized by Department of Instrumentation & Control Engineering, Manipal Institute of Technology, Manipal, pp 184.
8. P. R. Prabhu, S. M. Kulkarni, S. S. Sharma, “Influence of deep cold rolling and low plasticity burnishing on surface hardness and surface roughness of AISI 4140 steel”, International conference on Mechanical and Industrial Engineering" 25 – 27 August 2010.
 9. Selvaraj M, Kulkarni S. M. And Ramesh Babu R., “Structural assessment of FRP cross arm for power transmission line towers”, International conf. on Advances in Materials and Techniques in civil Engineering (ICAMAT 2010) VLBJCET, 07-09 Jan, 2010
 10. B. Krishna Prabhu, G.J.Chomal, S.M.Kulkarni “Tribological investigation of recycled Poly (ethylene terephthalate) blends”, National Workshop on Wear and Erosion of Industrial and Power Plant Components, Central Power Research Institute Bangalore, 8-9 Feb 2013
 11. Ashwin Simha, S. Meenatchi Sundaram, Dr. S.M Kulkarni , “Comparison of various methods for the determination of resonant frequency of axially loaded fixed beam MEMS resonators for pressure sensors”, National Conference on Advances in Mechanical Engineering, organized by Department of Mechanical Engineering, Manipal Institute of Technology, Manipal, January 3-5, 2011.
 12. P. R. Prabhu, S. M. Kulkarni, S. S. Sharma, “The effects of deep cold rolling and low plasticity burnishing process on surface hardness of AISI 4140 steel”, National conference on Advances in Mechanical Engineering, 03 – 05 January 2011.