ISSS-NC 6

Sixth ISSS National Conference on
MEMS, Smart Materials, Structures and Systems
September 6-7, 2013 R&DE(Engrs), Pune

Technical Program – Day 1

Leonardo da Vinci - Auditorium		
Registration		08:00 – 09:00
Inaugural Session		09:00 – 10:30
Inauguration of Exhibition & High Tea		**10:30 – 11:15**
Plenary 1, Prof Krishnan Balasubramaniam, IIT M		11:20 – 12:05
Auditorium	**TIC Conference Hall**	
Invited Talk 1 (S Mukherjee)	Invited Talk 3 (P Gandhi)	12:10 – 13:35
Invited Talk 2 (Amita Gupta)	Paper 40	
Paper 05	Paper 88	
Paper 12	Paper 112	
	Paper 83	
Lunch (Officer's Mess)		**13:35 – 14:20**
Invited Talk 4 (V Natarajan)	Invited Talk 5 (D Amalnerkar)	14:20 – 15:45
Paper 09	Paper 89	
Paper 11	Paper 90	
Paper 25	Paper 101	
Paper 93	Paper 16	
Tea		**15:45 – 15:55**
Invited Talk 6 (Rudra Pratap)	Invited Talk 7 (TK Bhattacharya)	15:55 – 17:35
Paper 120	Invited Talk 8 (R Patrikar)	
Paper 36	Paper 80	
Paper 52	Paper 30	
Paper 61	Paper 104	
Paper 92		
Leonardo da Vinci – Auditorium		
ISSS Awards Function		17:40 – 19:10
Cultural Program		19:15 – 20:40
Conference Dinner (Officer's Mess)		**20:40 – 22:00**

For Paper Title and Author details please refer sheet 3 to sheet 10

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Technical Program – Day 2

Leonardo da Vinci - Auditorium		
Breakfast		**08:00 – 08:30**
ISSS AGM		08:30 – 09:00
Sponsor's Promotion Slot		09:30 – 10:00
Plenary 2, Prof S K Koul, IIT D		10:00 – 10:45
Tea		**10:45 – 11:00**
Auditorium	**TIC Conference Hall**	
Invited Talk 9 (S Duttagupta)	Invited Talk 10	11:00 – 12:25
Paper 56	Paper 23	
Paper 57	Paper 55	
Paper 59	Paper 65	
Paper 43	Paper 79	
Break		**12:25 – 12:30**
Invited Talk 11 (SK Bhaumik)	Invited Talk 12 (C Ramdas)	12:30 – 13:20
Paper 123	Paper 10	
Paper 46	Paper 35	
Lunch		**13:20 – 14:00**
Interactive Poster Session – Venue 3 - Near Auditorium		14:05 – 15:15
Tea		**15:15 – 15:25**
Invited Talk 13 (Raghu)	Invited Talk 14 (R Mahapatra)	15:30 – 16:50
Paper 109	Paper 32	
Paper 122	Paper 60	
Paper 31	Paper 94	
Paper 39	Paper 98	
HALL A – Leonardo da Vinci - Auditorium		
Concluding Session		16:55 onwards

For Paper Title and Author details please refer sheet 3 to sheet 10

ISSS-NC

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Sixth ISSS National Conference on

MEMS, Smart Materials, Structures and Systems

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Invited Papers

Invited Talk No	Invited Talk By	Title	Schedule * (25 min presentation + 5min QA)
Day 1 : 6th Sept 2013			
1	Saumyo Mukherjee	Porting Optical Fiber (Bio)Sensors onto High Aspect Ratio Polymer Waveguides	Auditorium **12:10 – 12:40**
2	Amita Gupta	MEMS deformable mirrors : Technology & defence applications	Auditorium **12:40 – 13:10**
3	Prasanna Gandhi	A Novel Micro Stereo Lithography (MSL) & Bulk Lithography (BL) technology for polymer / ceramic MEMS	TIC Conf Hall **12:10 – 12:40**
4	V Natarajan	MEMS sensor for underwater applications	Auditorium **14:20 – 14:50**
5	D Amalnerkar	Functional materials at nanoscale: CMETs initiatives	TIC Conf **14:20 – 14:50**
6	Rudrapratap	Design of natural smart transducers: a study of sound production mechanism in field crickets	Auditorium Hall**15:55 – 16:25**
7	T K Bhattacharya		TIC Conf. **15:55 – 16:25**
8	R Patrikar		TIC Conf **15:55 – 16:25**
Day 2 : 7th Sept 2013			
9	S Dattagupta	Nano-scale component design for Tera-Hertz applications	Auditorium **11:00 – 11:30**
10		*To be announced later*	TIC Conf **11:00 – 11:30**
11	S K Bhaumik	Fatigue in NiTi Shape Memory Alloy Thermal Actuators	Auditorium **12:30 – 13:00**
12	C Ramdas	Interaction of Lamb waves with discontinuities in composite structures	TIC Conf **12:30 – 13:00**
13	N Raghu	Multilayer piezo ceramic actuators and its applications	Auditorium **15:30 – 16:00**
14	D Roy Mahapatra		TIC Conf **15:30 – 16:00**

Contributory Papers (Oral)
Day 1 : 6th Sept 2013

Paper No	Authors	Paper Title	Schedule (10 min presentation + 2min QA)
5	M.S. Giridhar, Shailesh Somani, Ashwini Jambhalikar, Jiju John, Rafiqul Islam, Ananda Behera, C L Nagendra	Experimental and numerical modeling of on/off cycling reliability of an electrostatic RF MEMS switch	Auditorium **13:10 – 13:35**
12	Supriya S. Patil and A. D. Shaligram	Large stroke fiber optic displacement sensor using self referencing technique	
40	K. Venkata Rao, S. Raja and T. Munikenche Gowda	Vibration analysis and actuation authority of plate with debonded macro-fiber composite actuators	TIC Conf Hall **12:40 – 13:35**
88	Anjana Jain, P. Siva Subba Rao	PVDF-PZT composite films for strain sensing applications	
112	Ajay Dangi, Amod Hulge, Rudra Pratap	Development of a Piezoelectric Micromachined Ultrasonic Transducer	
83	Megha Shree.Y.V, Sudeep Joshi, M.M.Nayak and K.Rajanna	Effect of external magnetic field on the properties of piezoelectric thin film during sputting process: application in vibration sensing	
9	Hailu Dessalegn and T. Srinivas	Optical MEMS pressure sensor based on integrated ring resonator	Auditorium **14:50 – 15:45**
11	Rohith Soman, S. B Rudraswamy, P. K Basu, Navakanta Bhat	Metal oxide gas sensor array on single chip	
25	Niharika Bhardwaj, Mahendra Nitharwal, Anuj Chaturvedi, R. Mukhiya, Rishi Sharma, V. K. Khanna, B. R. Singh	TA_2O_5 - based Extended Gate Field Effect Transistor as PH sensor	
93	Vivekanand Bhatt, Jayanta Gope, Jaising Pednekar, Rahul Purandare, Ritesh Kumar and Makarand Joshi	UV-LIGA based fabrication process development for fabrication of passive 'g' sensors	

Contributory Papers (Oral)
Day 1 : 6th Sept 2013

Paper No	Authors	Paper Title	Schedule (10 min presentation + 2min QA)
89	Vinaya Kumar K.B, G. M. Hegde, M. M. Nayak, N.S Dinesh, K. Rajanna	Microneedle technology for transdermal drug delivery	TIC Conf Hall **14:50 – 15:45**
90	Roopa.G , K.Rajanna, D. Roy Mahapatra and M.M.Nayak	Differentiability between normal and respiratory tract disorder respiration pattern using smart sensor	
101	Mahale B P, Bodas D. S., and Gangal S.A.	Low actuation voltage RF MEMS switch using varying section composite cantilever beam	
16	Sriguru Jaydev Krushnadas Kar, Bijaya kumar Sahoo ,Sakuntala Mahapatra, Tanmay Kumar Das	Detection of antigen by cantilever sensor	
120	Sukomal Dey and Shiban K. Koul	Design, fabrication and characterization of 5-bit individual switched-line phase shifter using inline MEMS metal contact switch	Auditorium **16:25 – 17:35**
36	Vijay Thyagarajan R and K N Bhat	Optimum location of piezoresistors with square diaphragm MEMS pressure sensors	
52	Vidya Shree MS, GH Sarma	Frequency selection through electrode patterning in FBAR resonators	
61	Yeshashwini L.Reddy, Girisha G.K, U.K. Deepak, Ramanuja H.S, Veda Sandeep Nagaraja, S.L.Pinjare	Design and simulation of piezoelectric microphone	
92	Dheeraj Kharbanda, P.K. Khanna	Packaging of EGFET devices for PH monitoring applications	
80	K.Shruti, S. Chitra, Prita Nair	Modeling and experimental validation of Electrothermal actuator for optical applications	TIC Conf Hall **16:55 – 17:35**
30	M. Samyuktha and S. Kanthamani	A high isolation series-shunt-series RF NEMS switch	
104	M.Manivannan, R.Joseph Daniel, K.Sumangala	Low actuation voltage RF MEMS switch using varying section composite cantilever beam	

Contributory Papers (Oral)
Day 2 : 7th Sept 2013

Paper No	Authors	Paper Title	Schedule (10 min presentation + 2min QA)
56	Roshna B. Raj, V. Natarajan	A Novel MEMS Vector Sensor	Auditorium **11:30 – 12:25**
57	KA Thomas, P Mohanadas, P Annadurai, R Rajeswari, Rajeev R Ashokan, V Natarajan	Development of flexible temperature sensor array	
59	C. P. Goyal, N. S. Ramgir, P. K. Sharma, N. Datta, M. Kaur, A. K. Debnath, F. Z. Haque, D. K. Aswal, S. K. Gupta	Design and Development of E-nose Based on Pure and Modified WO_3 Thin Film	
43	Rahul Prajesh, Nishit Jain, V K Khanna, V Gupta and Ajay Agarwal	NO_2 and NH_3 gas sensors based on MEMS technologies	
23	Johnson V. Nellisery, Mira Mitra, Nitesh P. yelve	Lamb wave based damage detection in an aluminum plate using RMSD and Hilbert Haung Algorithm	TIC Conf Hall **11:30 – 12:25**
55	Rammohan.S, Ramya.C.M, Ramasimha.B, Anjana Jain, Rudra Pratap	Low frequency vibration energy harvesting using arrays of PVDF piezoelectric bimorphs	
65	Rajiv Panigrhai, Gopal Hegde, K J Vinoy, Joy Thomas M	Design and fabrication of serpentine travelling wave tube at THz frequencies	
79	Arshiya Sulthana, Prita Nair	Programmable optical clock rate generation using silicon micro ring resonators	
123	Amit Kumar Gupta, R. Velmurugan, Makarand Joshi	Shape Memory Alloy embedded adaptive composite structure with improved post damage strength	Auditorium **13:00 – 13:20**
46	K.V. Ramaiah, C.N. Saikrishna, D. Paul, S.K. Bhaumik	Thermo-mechanical fatigue behavior of Ni-Ti-Pt high temperature shape memory alloy Wires	
10	Augustin MJ, Sakthi Sathya, SR Viswamurthy, Nitesh Gupta, Ramesh Sundaram	Sensor sensitivity studies towards development of impact event detection system for composite laminates and metallic plates	TIC Conf Hall **13:00 – 13:20**
35	Nikhil Jorapur, G K Ananthasuresh	Modeling and characterization of Heat-pulse soil moisture sensor	

Contributory Papers (Oral)
Day 2 : 7th Sept 2013

Paper No	Authors	Paper Title	Schedule (10 min presentation + 2min QA)
109	Payal Bhavtankar, Shrikant Kulkarni, Vijaya Giramkar, Shany Joseph and Girish Phatak	Fabrication of sub-50 micron thick cantilevers in LTCC	Auditorium 16:00 – 16:50
122	G.S. Gayathri, K.T. Nithina, K.G. Vasanthakumari, T. Radhika and N. Raghu	Dispersion and tape casting of fugitive carbon for LTCC applications	
31	S. Kavitha, A, R. Joseph Daniel B, K.Sumangala	Performance comparison studies on MEMS piezo-resistive and comb drive capacitive accelerometers designed for concrete SHM application	
39	Mahanth Prasad, Gurpreet Singh Gill, Subha Laxmi and V.K. Khanna	Design and Fabrication of Micro hot plate for Gas Sensing Application	
32	R.Joseph Daniel, K.Sivasundari	Design and analysis of PWM based pressure sensor	TIC Conf Hall 16:00 – 16:50
60	Arjun Shetty, K J Vinoy, S B Krupanidhi	A study on the effect of geometry and presence of Au nanoparticles on properties on GAN based Metal-Semiconductor-Metal (MSM) UV photo detectors	
94	Jaising Pednekar, Vivekanand Bhatt, Jayanta Gope, Rahul Purandare, Ritesh Kumar and Makarand Joshi	UV-LIGA based micro-machining process for fabrication of mechanical components for micro-mechanisms	
98	Monika Sharma, Bijoy K. Kuanr, Manish Sharma and Ananjan Basu	Microwave complex permeability and permittivity of Ni nanowires : theory and experiment	

Poster Session
7th Sept 2013 : 14:05 to 15:15 Hrs
Venue 3: Next to Auditorium

Paper No	Authors	Paper Title
3	Raghavendra Mulimani, Dr.PreetaSharan, Dr.T.Srinivas	A Finite Element Analysis for Dynamic Strain Measurement with Enhanced Sensitivity on Naval Platform
6	K M Vinayaka Swamy & B G Sheeparamatti	Modeling of Electrostatic Chemical Sensor in MATLAB/Simulink and COMSOL
15	Shantanu Kumar Pradhan Abhisek Mishra, Sakuntala Mahapatra,Tanmay Kumar Das	Thermoelectrical structural analysis by using microresistor beam
20	KM VinayakaSwamy, G Ravi Prakash, B G Sheeparamatti	Design and Analysis of RF MEMS Switch using COMSOL and MATLAB
22	Veena S, Lokesha H, Pavithra S	Enhanced comfort for the pilot: silent helmet using adaptive noise cancellation technology
24	Navin D. Anwani, Raghavendra B. Deshmukh, Rajendra M. Patrikar	EWOD based digital microfluidics: design, fabrication and testing of a low cost test-chip
28	K.Aruna devi and S. Kanthamani	Design of comb line band pass filter using RF MEMS varactors
29	Vengatesh.M, Vivek Sriram.O.P, Ragavendra.S, Dr.S.Kanthamani	Design and development of varactors for Ku band applications
32	R.Joseph Daniel, K.Sivasundari	Design and analysis of PWM based pressure sensor
38	Sunil Kumar, Kirti Saini, Anurekha Sharma	Design and simulation of heart beat based meander shaped ALN piezoelectric energy harvester for pacemakers
45	Premkumari.E, S.Hosmin Thilagar	Design and simulation of electrothermally actuated MEMS gyroscope
49	S. Santosh Kumar, B. D. Pant	Design considerations for SOI piezoresistive pressure sensor
51	Angel Christina R, GH Sarma	Single mask tunability of beam resonators

Poster Session
7th Sept 2013 : 14:05 to 15:15 Hrs
Venue 3: Next to Auditorium

Paper No	Authors	Paper Title
54	Ankitha E. Bangera, Satyabodh M. Kulkarni	Modeling and analysis of CNT/silicone rubber nanocomposite pressure sesnor
64	Priya Chhabra, Arjun Shetty	Design and simulation of microcantilevers with various shapes in a ZnO Based piezoelectric energy harvester for tire pressure monitoring system applications
66	S.Harish Kumaran, J.Prakash Vel, C. Bharathi Priya, N.Gopalakrishnan, A. Rama Mohan Rao	Impedance Based Damage Identification of Structures Using Smart Piezoelectric Sensors
67	B.G.Sheeparamatti, Rachita Shettar	Simulation analysis of electrothermal microactuators
68	B. Vasudev Anand, E. S. Shajahan and M. S. Bhat	RF MEMS based Loaded Line Phase Shifter for X-band Applications
70	Jayu Kalambe, Rajendra Patrikar	Microcantilever based accelerometer with feedback control circuit
71	Chenna Reddy B, E.S. Shajahan and M.S. Bhat	A 180° bit c-band phase shifter using interdigital low pass/high pass filter
77	Pooja Deshmukh, Alok Kumar Jha, Preeta Sharan, T. Srinivas	Photonic crystal sensor to measure stress/strain in sub-micro range
78	Vinay K, Saswata Chakraborty, Avinash Kamath, Abhishek Vasisht B, Dr. R.V. Iyer	MEMFET based hydrophone design, simulation and analysis
86	J.K.Radhakrishnan and V.C.Padaki	Mechanical failure analysis of needles, for micro-needle array dry-electrodes
95	Anurag Srivastava, Jaising J Pednekar, Rahul C. Purandare, K S Bhat and Makarand Joshi	UVLIGA microfabrication of serpentine waveguide with thick su8 photoresists for 220 GHZ TWT
97	M. Hari Prasad, K V Gangadharan, ACR Pillai	Synthesis and characterization of magnetorheological grease

Poster Session
7th Sept 2013 : 14:05 to 15:15 Hrs
Venue 3: Next to Auditorium

Paper No	Authors	Paper Title
102	Neelesh Vighe, Monika Gayake, Dhananjay Bodas, S.D. Gupta, S.A. Gangal	Simulation and characterization of cantilever and diaphragm type MEMS structures as power switch
103	Akanksha D. Singh, Deepak G. Khushalani, Rajesh S. Pande, Rajendra M. Patrikar	MEMS cantilever switch based low pass filter
106	Lalat Indu Giri, Manish Sharma, and Suneet Tuli	Aging Study of Thermoelectric Bismuth Telluride Nanowires
108	Kunti Magar, Mangesh Dayaphule, Vijaya Giramkar, Shany Joseph*, Girish Phatak	High-density interconnections using electroplated solder capped metallic pillars
110	Atul and Dr. Vinayak Ranjan	Design and analysis of piezoelectric cantilever beam with PZT thin films array for vibration energy harvesting
116	Lakshmi.S, Sachin.N, Saketh A, Sandeep K and S V Patil	Design of CMOS compatible PZT MEMS switches for RF applications
118	Arunkumar G, T.C.Manjunath	Simulation of a discrete sliding mode controller for hollow composite structures