

Biography



Name : Enakshi Bhattacharya, PhD
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Enakshi Bhattacharya completed her MSc (Physics) from the Indian Institute of Technology Bombay in 1980; PhD from the Tata Institute of Fundamental Research, Mumbai in 1985 and did post-doctoral work on the light induced effect in amorphous silicon solar cells at the National Renewable Energy Laboratory, USA from 1986-88. She was a faculty member in the Department of Physics, IIT Kanpur during 1988-91. Since 1991, she has been on the faculty of the Department of Electrical Engineering at IIT Madras and was heading the department during 2010-2013. She spent a sabbatical year in 2000 at the Micromachined Products Division, Analog Devices, USA and spent a semester at IIT Mandi in 2017. She has played a key role in establishing the Centre for NEMS and Nanophotonics at IIT Madras in 2011. Her expertise is in silicon processing and its interdisciplinary applications and her current research areas are in MEMS/NEMS, BioMEMS and Biosensors with over 150 papers in journals and international conferences.

M.S. guidance: *Completed – 20* *Ongoing – 3*

PhD guidance: *Completed – 8* *Ongoing- 3*

Publications/conference presentations etc.

Refereed Journals: 52, International Conferences: 101, Book chapters:2

Patent: 1

Indian Final version L - KS - 9916 filed on 30/07/2014. Licensed to Purius Nanosystems Private Limited, 2015.

Selected publications

1. M. V. Chinnamani, P. Bhadra, V.T. Fidal, S. Gayathri, A. Chadha, and E. Bhattacharya, Ultrasensitive detection of antigen-antibody interaction and triglycerides in liquid ambient using polysilicon cantilevers, *J. Micromech. Microeng.* 30(2020) 125002

2. N.P. Ratchagar, V.T. Fidal, P. Bhadra, A. Ghosh, A. Chadha and E. Bhattacharya, Sensor for continuous and real-time monitoring of biomolecule permeation through ultrathin silicon nanoporous membranes, *IEEE Sensors J.*, 19 (12), 4419-4427, 2019, doi: 10.1109/JSEN.2019.2900285
3. G. Kathel, M. S. Shajahan, P. Bhadra, A. Prabhakar, A. Chadha, and E. Bhattacharya, Measurement and reliability issues in resonant mode cantilever for bio-sensing application in fluid medium, *J. Micromech. Microeng.*, Volume 26, Number 9, 2016. <http://dx.doi.org/10.1088/0960-1317/26/9/095007>
4. V. Sista and E. Bhattacharya, Knudsen's force based MEMS structures, *J. Micromech. Microeng.* 24, 045003 pp05, 2014. Selected as one of the 2014 **Highlights** of *J. Micromech. Microeng.*
5. M. S. Veeramani, P. Shyam, N. P. Ratchagar, A. Chadha, E. Bhattacharya, and S. Pavan, A miniaturized pH sensor with an embedded counter electrode and a readout circuit, *IEEE Sensors J.* vol 13(5) pp 1941-1948, May 2013. doi: 10.1109/JSEN.2013.2245032.
6. S. Basu, A. Prabhakar and E. Bhattacharya, Estimation of stiction force from electrical and optical measurements on cantilever beams, *IEEE/ASME J. of MEMS*, Vol. 16, No. 5, October 2007 p1254-1262.

Sponsored Projects:

Completed – 25. As PI 12 and as co-PI 13.

Ongoing – 3, As PI 1 and as co-PI 2.

1. Nanoelectronics Network for Research and Applications (N-NeTRA)-IIT Madras, DST and MeitY, PI: E. Bhattacharya and N. DasGupta with 26 co-investigators, 2018-2022.

Administrative and organisational experience:

Independent Director (non-executive): SPEL Semiconductor Ltd, Chennai from 2014;

Chiptest Engineering Ltd, Chennai from 2012

Member, Board of Governors, National Instt. of Technology, Puducheri, 2012-2015

Head, Department of Electrical Engineering, IIT Madras, 2010 – 2013

Organiser/Co-organiser:

1. Optical Sensors Track Co-chair, IEEE Sensors 2019, Montreal and IEEE Sensors 2018, New Delhi.
2. Co-chair: Women's Leadership Forum, IEEE Sensors 2018, New Delhi.
3. International Conference on MEMS and Sensors, ICMEMS, IIT Madras, Chennai. Jan 2009; Dec 2014
4. Theme Symposium on Nanomaterials: Devices and Applications, International Union of Materials Research Societies-International Conference in Asia (IUMRS-ICA 2013), Bangalore, December 16-20, 2013
5. Member of Programme Committee of SPIE's Photonics West, Micromachining and Microfabrication Symposium on Reliability, San Jose, 2007, 2008, 2009 and San Francisco, 2010.

Membership of Societies:

Life member: Semiconductor Society of India; Indian Society for Smart Structures.

Member: IEEE

Award:

ISSS Distinguished Service Award – 2019 by the Institute of Smart Structures and Systems (ISSS) for distinguished and seminal scientific and technical contributions to the growth of microsystems technologies in the country.