

Joshi Abhayakumar Bharatrao.

Area of interests

MEMS, Micromachined devices, Micromachined Antenna.

Research projects.

- **MEMS based Piezoresistive Accelerometer:**

The MEMS based Piezoresistive accelerometer is emerging sensor in automobile and defense products. In this project, 50g single axis accelerometer designed in our department is getting fabricated at Bharat Electronics Ltd, Bangalore, since Nov 05.

In this project, my role is to do optimization of fabrication steps such as piezoresistor fabrication, bulk micromachining and structure release processes required for accelerometer fabrication. Currently I am working on fabrication of accelerometer devices on 3" wafers.

Other research projects.

- "ZnO based thick film Ammonia gas sensor" at Dept of electronic science, university of Pune, Pune as technical assistant during July 05-Nov 05
- "Different switching circuit in nanosecond to implement Microwave Level Sensor" at SB Electromagnetic Pvt. Ltd, Pune & Dept of electronic science, university of Pune as a Project student during May 04- April 05
- "Fabrication of Hall Effect sensor using Si" at Dept of electronic science, university of Pune, Pune as Project student during June 04-Dec04

Fabrication skill:

Mask designing (3" and 4 ") using Coventorware.

Clean room related skills:

Wet chemical etching – Si Bulk micromachining using KOH, TMAH.

– Glass micromachining.

Reactive ion etching – Plasma lab 500.

Lithography – UV lithography (>1 μm).

Have done work on following systems.

- Furnace oxidation, doping, annealing.
- Sputtering - Edwards 500,
- APCVD,
- Photolithography (>1 μm), Suss tech mask aligner.

Co-curricular activities :

Mini Projects in M.Sc

- Remote Controlled Fan Regulator.
- Sound scanner: For domestic purpose like home security.
- PLC using C language: To control 8 different devices.
- Touch control power supply (1.5 –24 V).
- Stimulation of IC 8251 using XILINX

Academics :

- Post graduated in Electronic science from university of Pune with A grade, GPA 6.2.
- Graduated in Electronics from Shivaji University Kolhapur with 79.96% marks.
- Completed H.S.C. Examination from K.M.V., Ambajogai with 58.5% Marks.
- Completed S.S.C. Examination from J.V., Dharmapuri with 63.7% Marks.

Technical Skills :

- MEMS Design software: Coventorware
- Mask (3" and 4") designing using Coventorware
- Computer languages: BASIC, C
- Assembly Languages 8051, 8085.

Extra-Curricular :

- Completed certificate course in C.
- 2nd rank in C-DAC certificate course DIT in pune division, 2001.

Awards :

- First Prize for Best research paper presentation at 11th National Seminar on Physics & Technology of Sensor (NSPTS -11), Pune, Mar 2005
- EKALAVYA scholarship for 2003-04 & 2004-05 at Pune University.
- KALARATNA award for 1st rank in debate Aurangabad division, 1996.

Research Papers:

- 1) **“Comparative study of Irradiated And Annealed ZnO Thin Films for Ammonia Gas Sensing.”**
Abhijeet Kshirsagar*, **A. B. Joshi**[#], Aditee Joshi[#], D. K. Avasthi[§], T. M. Bhavne[#], S.A. Gangal^{*#}.; IEEE Sensors digest 2007.
- 2) **“Optimisation of MEMS piezoresistive accelerometer”**
A. B. Joshi., Shrihari H.S, Chandana Y , K. Natarajan, ” at national seminar on MEMS at RCI, Hyderabad, Nov 06.
- 3) **“ZnO based Ammonia gas sensor”** Abhijeet Kshirsagar, **A. B. Joshi** at National seminar on interdisciplinary Electronics at Chopada, Jalgaon, Maharashtra in Jan 2006.
- 4) **“Prediction of Cross-axis-sensitivity of inertial micro-sensor through modeling and simulation ”** B. P. Joshi, **A. B. Joshi** , S. A. Gangal “at 11th National Seminar on Physics & Technology of Sensor (NSPTS-11), Pune, Mar. 2006.

References

- 1) **Prof. S.A.Gangal**
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University of pune. Pune.
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- 2) **Dr. K. Natarajan**
AGM, Small signal Devices
Bharat Electronics Ltd (BEL), Bangalore
Bangalore, India.

Personal Details :

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