## **Dr. SHEETAL J. PATIL**

 Post Doctorate Fellow

Microelectronics branch

Department of Electrical Engineering

Indian Institute of Technology Bombay,

Powai, Mumbai, India

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# **AREAS OF INTEREST**

 

# **EDUCATION**

#### Doctor of Philosophy (Ph.D.) in Electronic Science

(Department of Electronics Science)

Specialization : **Thin films processing (Material Science)**

Institute : **University of Pune**

Awarded date : July 2004

### Master of Science (M. Sc.) in Electronic Science

Major : **Electronic Science**

Institute : **Department of Electronic Science,**

 **University of Pune, India**

Post Graduation : June 1998

### Bachelor of Science (B.Sc.) in Electronic Science

Major : **Electronic Science**

Institute : **Modern College,**

 **University of Pune, India**

Graduation : June 1996

# **RESEARCH EXPERIENCE**

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| --- | --- | --- | --- |
| **From** | **To** | **Name and Address of Company / Organization**  | **Position held**  |
| April 2004 | Till date | Microelectronics groupDept. of Electrical Engg.IIT Bombay, Powai, Mumbai 400 076 | **Post Doctorate Fellow** **(PDF)** |
| August 2001 | March 2004 | Dept. of Electronic ScienceUniversity of Pune, Pune 411 007 | **CSIR-India sponsored Senior Research Fellow (SRF)** |
| Dec. 1998 | July 2001 |  Dept. of Electronic ScienceUniversity of Pune, Pune 411 007 | **Junior Research Fellow (JRF) (BRNS sponsored project)** |
| July 2000 | Oct. 2000 | Modern College, University of Pune | **Lecturer** |
| June 1998 | Dec. 1998 | Dept. of Electronic ScienceUniversity of Pune, Pune 411 007 | **OHP Software Developer** |

# **PROJECTS & SEMINARS UNDERTAKEN**

##### **Ph. D. Topic**

* Deposition and characterization of Nitride and/or Oxynitride films of Silicon and Indium in an In-House fabricated, “Activated Reactive Evaporation (ARE)” System.

 **Guide: Prof. S. A. Gangal**

##### **M. Sc. Project**

* Development of Voltage Clamp instruments for Cell Characterization

**Guide:** **Dr. A. D. Shaligram**

##### **Project Like Experiment**

1. MOS Capacitor fabrication
2. PC to PC communications

##### **B. Sc. project**

* Development of data acquisition system using 8085 microprocessor

 **Guide:** **Dr. S. Deuskar**

# **PROFICIENCY IN**

# 1. Programming Languages : **C, C++ and HTML 4.0**

2. Graphical Packages : **Corel 9, Adobe Photoshop 5.0, Illustrator 7.0, Fractal**

 **Designer, Origin 6.0**

3. Operating Systems : **MS-DOS, Windows 9X, 2000 & WINDOWS-NT**

4. Web Packages:  **Front Page 2000, First Page 2000, Java Designer**

# **EXPERIENCE IN SEMICONDUCTOR PROCESSING**

Working in Microelectronics lab (Class 1000) of Department of Electrical Engineering at *I.I.T. Bombay, INDIA*. I am having expertise on following systems: -

* Activate Reactive Evaporation (ARE) system
* Three zone Oxidation/Diffusion Furnaces from M/sTempress, General signal
* Electron Beam Vacuum Coating Unit M/s Edwards Vacuum systems
* Thermal Evaporation System M/s HindHivac Vacuum systems
* Mask aligner M/s Indo French High tech Equipment
* DC and RF Plasma Sputtering System
* Millipore and Barnstead DI water plant set up
* RCA and Ultra sonic cleaning set up
* Ellipsometer M/s Sentech Ellipsometer (SE800)
* Thorough knowledge of operation and maintenance of clean workbenches (class 100) and clean rooms (class 1000)
* Optical Lithography
* Magnetron Sputtering System
* Plasma Polymerization System
* Plasma Ashing system
* Scanning Electron Microscope
* X-ray Photoelectron Spectrometer

# **CHARACTERIZATION TECHNIQUES KNOWN**

* X-Ray Diffraction (XRD)
* X-ray Photoelectron Spectroscopy (XPS)
* Energy Dispersive Analysis of X-ray (EDAX)
* Fourier Transform Infra-Red Spectroscopy (FTIR)
* UV Spectroscopy
* Ellipsometery
* Contact Angle measurement
* Scanning Electron Microscopy
* C-V and I-V measurements
* Atomic Force Microscopy
* Antibody Immobilization set up

**PUBLICATIONS**

### **International Journal**

1. ***Sheetal J. Patil***, Dhananjay S. Bodas, A. S. Ethiraj, R. C. Purandare, G. J. Phatak, S. K. Kulkarni and S. A. Gangal. **“Vacuum 65/1 (2002) 91-100”**.
2. ***Sheetal J. Patil****,* Dhananjay S. Bodas, G. J. Phatak and S. A. Gangal. **“Bull. Mater. Sci. 25/5 (2002) 399-402”**.
3. ***Sheetal J. Patil***, Dhananjay S. Bodas, A. B. Mandale and S. A. Gangal, “**Thin Solid Films 444 (1-2) (2003) 52-57”.**
4. ***Sheetal J. Patil***, Dhananjay S. Bodas, A. B. Mandale and S. A. Gangal Accepted for Publication to the Journal **“Appl. Surf. Sci.”.**
5. Dhananjay S. Bodas, ***Sheetal J. Patil***, A. B. Mandale and S. A. Gangal, Accepted for Publication to the Journal of **“Appl. Poly. Sci. 91 (2004) 1183-1192”.**
6. Dhananjay S. Bodas, R. V. Dhabhade, ***Sheetal J. Patil***, and S. A. Gangal, **“Proc. MHS-2001 IEEE; 51-56”.**

### **National Journal**

1. Dhananjay S. Bodas, R. V. Dhabhade, *Sheetal J. Patil*, and S. A. Gangal, **“Journal of Indian Institute of Science” 81/6 (2001) 645.**

### **Conferences**

1. Dhananjay S. Bodas, R. V. Dabhade, ***Sheetal J. Patil***, and S. A. Gangal, “National Seminar on Physics and Technology of Sensors (NSPTS-9)” at Dept. of Electronic-Science, University of Pune, India, March **2002**, p-C-33-1
2. ***Sheetal J. Patil***, Dhananjay S. Bodas and S. A. Gangal, ‘IVSNS 2001’ at IISc. Banglore India **2001**.
3. Dhananjay S. Bodas, R. V. Dhabhade, ***Sheetal J. Patil***, and S. A. Gangal, ‘IVSNS 2001’ at IISc. Banglore India **2001**.
4. ***Sheetal. J. Patil***, G. J. Phatak and S. A. Gangal “National Seminar on Physics and Technology of Sensors (NSPTS-8)” at IGCAR, Kalpakam, India, Feb. **2001**, p-49.
5. Dhananjay S. Bodas, ***Sheetal J. Patil***, and S. A. Gangal, “National Seminar on Physics and Technology of Sensors (NSPTS-8)” at IGCAR, Kalpakam, India, Feb. **2001**, p-48.
6. ***S. J. Patil***, G. J. Phatak, and S. A. Gangal, “National Seminar on Physics and Technology of Sensors (NSPTS-7)” at Dept. of Electronic-Science, Univ. of Pune, India, March **2000**, p-C-59-1
7. ***S. J. Patil*,** N. A. Kulkarni and S. A. Gangal, “National Seminar on Physics and Technology of Sensors (NSPTS-6)” at Thapar Institute, Patiala, India,Mar **1999** p-C-36

### **Communicated**

1. ***Sheetal J. Patil*,** K. C. Mohite, A. B. Mandale, M.G. Takawale and S. A. Gangal, “Characterization of ‘ARE’ deposited silicon nitride films and their feasibility of antireflection coating” communicated to the journal **“Surface Science and coating technology”.**
2. Dhananjay S. Bodas, ***Sheetal J. Patil***, A. B. Mandle and S. A. Gangal,“PMMA as an etch mask for silicon micromachining”*,* communicated to the journal, **“Smart Materials and Structures”.**

# **MANAGEMENT EXPERIENCE**

1. As a system In charge for various furnaces and equipments
2. As a lab In charge of Microelectronics lab, Department of Electrical Engineering, IIT-Bombay. (Nov 04 – till date)

# **PROFESSIONAL OBJECTIVE**

# Seeking excellence in the chosen professional field through self-motivation, hard work and augmentation of core skills required to effectively deliver goods. Striving to achieve excellence through selective and focused pursuit of the short and long-term goals and trying to create an environment through my chosen organization and work field where knowledge and excellence are given their due.

# **FAVORABLE PERSONALITY TRAITS**

 Commitment to work, adaptability, goal oriented person, problem-solving abilities, Comfortable with teamwork, good coordination and persuasion skills.

# **PERSONAL DETAILS**

**Date of Birth** : 1st Nov1975

**Marital Status** : Single

**Category** : General

**Nationality**  : Indian

**Current Status** : **Post Doctorate Fellow**

**Microelectronics Group**

**Department of Electrical Engineering,**

**Indian Institute of Technology (I.I.T) Bombay,**

**Powai, Mumbai 400 076, INDIA**

**Present Address** : Hostel No. 11, Room No. 233

 IIT – Bombay, Mumbai - 400076

**Permanent Address** : 6th lane, Jaymala nagar, Near Ambi Hospital

 Sangavi, Pune-411 027,

 Phone: +91-20-2728 5130

##### **Languages Known :** English , Hindi & Marathi

##### **Hobbies** : Reading, singing, traveling & watching movies

**Indoor games** : Chess, Carom, Cards

**E-mail**  : sheetal@ee.iitb.ac.in, sheetu\_pa@yahoo.co.in

# **REFERENCES**

# **Prof. V. Ramgopal Rao**

# Microelectronics branch

# Department of Electrical Engineering

# Indian Institute of technology, Bombay

# Powai, Mumbai, INDIA

# **E- mail:** **rrao@ee.iitb.ac.in**

# **Prof. Rakesh Lal**

# Microelectronics branch

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# Indian Institute of technology, Bombay

# Powai, Mumbai, INDIA

# **Email:** **rlal@ee.iitb.ac.in**

# **Prof. (Ms.) S. A. Gangal**

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