CURRICULUM VITAE

Dr. Meenakshi Bhaisare

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- **OBJECTIVE**

  To join an institution, because my general interest in teaching and R &D in the field of nanotechnology and VLSI. I can contribute towards the attainment the goals through my experience, and similarly improve upon my own skills.

- **EDUCATION**

S.No.	Degree	University/ Institute	Specialization	Year of completion	% of Marks/ Grade
1.	Ph.D.	IIT Bombay, Mumbai	Electrical Engineering (Microelectronics)	October 2019	CPI of 6.48/10 for the 58 credits
2.	B.E.	DAVV/ IET, Indore	Electronics & Telecommunication	May 2006	70.83%
3.	Diploma	RGPV Bhopal / SPV Indore	Electronics	May 2003	80.68%

- **WORK EXPERIENCE**
  - **January 2021 – Present**

    Name of the organization: **VJTI Mumbai (MS)**

    Position held: assistant professor (tenure),

    Preparation and deliver lectures on the assigned subject in accordance with the institute's curriculum. The teaching is based on the interactive learning with proper demonstrations of the concepts. Preparation of study materials based on the syllabus with the knowledge on the current technological aspects. Worked on the admin related activities as assigned by the department as and when required. Guidance to the students towards completion of their research projects.
  - **December 2014 to August 2018**

    Name of the organization**: National Institute of Solar Energy, Gurugram (HR)**

    Position held**: Senior Research Scientist**

    Nature of duties**:**
    - Skill development division: Responsible for conducting the training programs in the field of Solar Energy Technologies and Applications, for the participants from developing countries which are politically connected through India. These programs were funded and monitored by ministry at Government of India. The programs were focused on latest development in

the Solar Energy and various policies in the respective field, where I delivered lectures on high-efficiency solar cells.

- Technical division: Worked towards setting-up of material and device characterization laboratory under passivated emitter-rear cell (PERC) project.

- **July 2006 to July 2007**

  Name of organization**: Lakshmi Narain College of Technology, Indore (MP)**

  Position held**: Lecturer**

  Nature of duties**:** Taught engineering subjects and conducted laboratory sessions. During the tenure subjects like Digital, Analog electronics and Microprocessor were taught.

- **PhD**

  Title: **Pulsed-DC reactive sputtered aluminum oxide for the surface passivation of crystalline silicon solar cell**

  Supervisor: Prof. Anil Kottantharayil

  The research work was mainly consisted of the process development of aluminum oxide (AlO_x) thin film deposition by pulsed-DC reactive sputtering technique for the application as surface passivation layer of c-Si solar cells. The Metal- Oxide-Semiconductor (MOS) capacitor were fabricated to perform semiconductor device characterizations. The thrust was to develop a low cost processing technique for AlO_x film deposition, in an industrial AMAT Endura cluster tool (200 mm). To get further insight of the material and interface property, various material characterization techniques like spectroscopy ellipsometer, XPS, TEM, EELS, AFM, XRR, FTIR and UV-Vis-NIR measurements were performed on the film. To qualify the applicability of AlO_x film for surface passivation of p-type silicon, the Sinton life-time tester was used for the minority carrier life-time measurements. The applicability of the film for surface passivation of p-type c-Si was observed with intensive study of the interface for the deposited film.

- **TECHNICAL SKILLS**
  - **Fabrication**
    - Proficient in theory and operation of the thin-film deposition systems like physical vapour deposition (PVD) and chemical vapour deposition (CVD)
    - Hand-on experience on industrial systems , Applied Materials Inc. ENDURA PVD (200 mm) and CENTURA Gate stack (200 mm)
    - Hand-on experience on rapid thermal processing, LPCVD furnace and thermal evaporator metal deposition system
  - **Material characterizations**
    - Proficient in spectroscopy ellipsometer and trained on XRR measurements
    - Sophisticated systems measurement and analysis TEM, EELS, XPS, AFM, FTIR and UV-Vis-NIR spectroscope
  - **Electrical Characterization**
    - Dielectric properties C-V, G-V and I-V were measured on MOS structures using semiconductor characterization system

- **Optical characterization**
  - Trained on In-house Solar-simulator to measure dark I-V and light I-V characteristics
  - Trained on Sinton Life-time tester for minority carrier life-time measurement
- **Software & simulations**
  - TCAD Sentaurus for process and device simulations
  - Open source EDA tool
  - PC1D for solar cell simulation and PVSyst for solar system design
  - Origin 8 for data analysis

- **AWARD**

  Received best poster presentation award for "Pulsed-DC reactive sputter deposited aluminum oxide for surface passivation of p-type silicon for solar cell applications," in the IIIrd International Conference on Advances in Energy Research (ICAER 2011), held at IIT Bombay

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- **EXTRA- CURRICULAR ACTIVITIES**

  - Participated as volunteer for various workshops, conferences and trainings held at IIT Bombay and NISE Gurugram.
  - Active participation in various sports

- **LIST OF PUBLICATIONS**
  - **Journal publications**

  - **M. Bhaisare**, A. Misra, and A. Kottantharayil, "Aluminum oxide deposited by pulsed-DC reactive sputtering for crystalline silicon surface passivation," *IEEE J. Photovolt.*, vol. 3, no. 3, pp. 930-935, 2013.
  - **M. Bhaisare**, A. Misra, M. Waikar, and A. Kottantharayil, "High quality Al_2O_3 dielectric films deposited by pulsed-DC reactive sputtering technique for high-k applications," *Nanosci. Nanotechnol. Lett.*, vol. 4, no. 6, pp. 645-650, 2012.

  - **Conference**
  - K. Midya, **M. Bhaisare**, A. Kottantharayil, and S. Dhar, "Investigation of nature of UV induced negative charge in Al_2O_3 film," In Proc. Of 3rd IEEE International Conference on Emerging Electronics, 2016, pp. 1-4.
  - **M. Bhaisare**, S. S. Sandeep, and A. Kottantharayil, "Thermal stability of single layer pulsed-DC reactive sputtered AlOx film and stack of ICP-CVD SiN_x on AlO_x for p-type c-Si surface passivation," In Proc. Of 2nd IEEE International Conference on Emerging Electronics, 2014, pp. 1-4.
  - **M. Bhaisare**, D. Sutar, A. Misra, and A. Kottantharayil, "Effect of power density on the passivation quality of pulsed-DC reactive sputtered aluminum oxide on p-type crystalline silicon," In Proc. Of 39th IEEE Photovoltaic Specialists Conference, 2013, pp. 1207-1211.
  - **M. Bhaisare**, G. Jeevanandam, and A. Kottantharayil, "Pulsed-DC reactive sputter deposited aluminum oxide for surface passivation of p-type silicon for solar cell applications," presented at 3rd International Conference on Advances in Energy Research, Mumbai, India, 2011.

- **M. Bhaisare**, A. Misra, M. Waikar, and A. Kottantharayil, "High quality Al_2O_3 dielectric films deposited by pulsed-DC reactive sputtering technique for high-k applications," presented at International Conference on Materials for Advance Technologies 2011, Singapore, 2011.
- A. Mishra, H. Kalita, M. Waikar, A. Gour, **M. Bhaisare**, M. Khare, M. Aslam, and A. Kottantharayil, "Multilayer graphene as charge storage layer in floating gate flash memory," *In Proc. of* 4th IEEE International Memory Workshop, Milano, 2012, pp. 1-4.
- A. Misra, M. Waikar, A. Gour, **M. Bhaisare**, S. Mane, P. Nyaupane, and A. Kottantharayil, "SiO_2/Al_2O_3 dielectric stack with low power pulsed-DC reactive sputtered high-k Al_2O_3 as blocking dielectric for NAND flash application," presented at International Workshop on Physics of Semiconductor Devices 2011, Kanpur, India, 2011.
- M. A. Khaderbad, R. Pandharipande, A. Gautam, A. Mishra, **M. Bhaisare**, A. Kottantharayil, Y. Meesala, R. Mangalampalli, and V. R. Rao, "Bottom-up Method for Work Function Tuning in High-k/Metal Gate Stacks in Advanced CMOS Technologies," In Proc. of 11th IEEE International Conference on Nanotechnology, Portland, Oregon, 2011, pp. 269-273.
- A. Misra, S. Sadana, S. Suresh, **M. Bhaisare**, S. Srinivasan, M. Waikar, A. Gaur, and A. Kottantharayil, "Effect of different substrate materials on the Pt nanocrystal formation statistics (size, density area coverage and circularity) for flash memory application," presented at MRS Fall Meeting 2010, Boston, 2010.

- **REFERENCE DETAILS**
  - Prof. Anil Kottantharayil,
    Professor, Department of Electrical Engineering, IIT Bombay, Powai, Mumbai – 400076,
    Contact no.: +91 9833619152, email: anilkg@ee.iitb.ac.in
  - Prof. Faruk Kazi
    HOD, Department of Electrical Engineering, VJTI Mumbai, H R Mahajani Rd, Matunga, Mumbai, Maharashtra 400019. Contact no.022 - 24198296, email: hod_degree@ee.vjti.ac.in
  - Dr. P. C. Pant,
    Former Scientist 'F', Ministry of New and Renewable Energy, Block -14, CGO Complex, Lodhi Road, New Delhi- 110003,
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- **Declaration**

I hereby declare that the information given by me in this CV is true to the best of my knowledge and belief.

Dr. Meenakshi Bhaisare