

## PERSONAL INFORMATION

**Robin Khosla, Ph.D.**

📍 A17.02.22, Institute of Technology (IIT) Mandi, Kamand, Himachal Pradesh, 175075, India

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Sex Male | Date of birth 24/08/1989 | Nationality Indian

## PROFESSIONAL PROFILE

**Research Area: Micro/Nano-Electronics**

**Research Focus: Materials for Semiconductors** [such as Semiconductors (Si, Ge, 2D-TMD), Insulators (High- $\kappa$  Dielectrics), Ferroelectrics, Metal Thin Films], **Semiconductor Devices** [such as Transistor, Memory (Flash, FeRAM, ReRAM), Solar Cells, Micro-Sensors, Josephson Junctions]

**Key Skills: Semiconductor Devices & Process Technology** – Substrate Preparation (RCA), **Thin Films** (PVD, CVD, ALD), **Photo-Lithography, Etching, Electrical / Material Characterizations**  
Experience of working in **Clean Room** and Management

## WORK EXPERIENCE

07 Jun 2023 – Present

**Assistant Professor, Grade-I, Lv-12**

Indian Institute of Technology (IIT) - Mandi, Kamand, Himachal Pradesh, 175075, India

- **Teaching:** Analog Circuit Design (EE-211); Device Electronics (EE-311); CMOS Processing & Practicum (VL-311)
- **Admin:** Assistant Warden - Prashar Hostel; CoAdvisor - NSS; Faculty Advisor - B.Tech. (MEVLSI) 2023-27; Coordinator - Centre for Design & Fabrication of Electronics Devices (C4DFED); Chair - SCEE STAR Committee;

06 Jul 2022 – 05 Jun 2023

**Assistant Professor, Grade-I, Lv-12**

29 Sep 2021 – 05 Jul 2022

**Assistant Professor, Grade-II, Lv-11**

National Institute of Technology (NIT), Silchar, Assam, 788010, India

- **Teaching:** Principles of Optoelectronics; Analog Electronics; Advanced CMOS Devices and Technology; Design and Synthesis using Verilog HDL; Microprocessors and Microcontrollers
- **Admin:** Coordinator - ECE Dept. Infrastructure Committee; Quality Control Assurance & Accreditation Committee; Co-Coordinator - ECE Dept. Website Committee; Member - ECE Dept. UG Program Committee; Member - Industry Institute Coordination & Cooperation Committee; Lab in Charge - Nanoelectronics Devices Fabrication & Characterization Lab; Associate Lab in Charge - VLSI Lab

01 Aug 2019 – 28 Sep 2021

**Alexander von Humboldt Post Doc Fellow**

University of Stuttgart, Stuttgart, Institute of Semiconductor Engineering (IHT), 70569, Germany

- **Research:** Development of High Mobility Ge/GeSn/SiGeSn based Planar/Vertical Logic & Memory Devices.

04 Jun 2018 – 31 Jul 2019

**Assistant Professor, Grade-II, Lv-10**

National Institute of Technology (NIT), Silchar, Assam, 788010, India

- **Teaching:** Basic Electronics, Analog Electronics, Selected Topics on VLSI

29 Sep 2017 – 01 Jun 2018

**Research Associate**

Indian Institute of Technology (IIT) - Mandi, Mandi, Himachal Pradesh, 175005, India

- **Research:** Development of Semiconductor Devices (FET & FRAM) based on High- $\kappa$  oxides and HfS<sub>2</sub> 2D Materials

29 Jul 2015 – 28 Sep 2017

**Senior Research Fellow (SRF)**

Indian Institute of Technology (IIT) - Mandi, Mandi, Himachal Pradesh, 175005, India

- **Research:** Development of high- $\kappa$  Er<sub>2</sub>O<sub>3</sub> MOS Devices and ALD-Al<sub>2</sub>O<sub>3</sub>/SiO<sub>2</sub> Embedded Memory devices

29 Jul 2013 – 28 Jul 2015

**Junior Research Fellow (JRF)**

Indian Institute of Technology (IIT) - Mandi, Mandi, Himachal Pradesh, 175005, India

- **Research:** Development of Ferroelectric Non-Volatile Memory devices

07 May 2012 – 06 Jul 2012

**Embedded Trainer**

TCIL-IT, Phase 10, Mohali, Punjab, 140001, India

- **Teaching:** Embedded Systems using microcontroller and related projects development

## EDUCATION

July 2013 – Sept 2017

**Ph.D.**

CGPA: 9.25 out of 10

Indian Institute of Technology (IIT)-Mandi, Mandi, Himachal Pradesh, 175005, India

- Ph.D. Thesis - Alternate High-k Dielectrics for Next-Generation CMOS Logic and Memory Technology

July 2011 – July 2013

**M.Tech. in VLSI Design**

76.55%

Punjab Technical University (CDAC Mohali), Punjab, India

- Thesis Title - Implementation of efficient image processing algorithm on FPGA

May 2007 – May 2011

**B.Tech. in Electronics and Communication Engineering (ECE)**

80.38%

Punjab Technical University, Punjab, India

## PUBLICATIONS

(List of Publications available in Annexure - I)

- **Patents** – 3
- **Journals** Publications – 31
- **Conference** Publications – 13
- **Book Chapters** – 2
- **Manuscripts in Preparation or Submitted** – 4

## PERSONAL SKILLS

Languages (R/W/S)

English, Hindi, Punjabi

Communication skills

- Excellent communication and teaching skills gained during Asst. Prof. position and TA's in various courses & labs.

Job-related skills

- Expert in physical/chemical vapor deposition techniques: Sputtering, ALD, Optimization of thin films gate stacks, semiconductor devices electrical characterizations and analytical methods. Good experience on low-cost spin-coating based organic semiconductor devices, fabrication and characterizations.
- Ability to write Projects, scientific reports with strong technical writing and presentation skills acquired by peer-reviewed articles and international/national proceedings publications.
- Teaching Bachelor/Masters students up to 120 numbers and Teaching Assistants gained during Assistant Professor Position.

Nanofabrication and Characterizations

- Thin films and coatings, Sputtering system, Multi-chamber Self Assembled Sputtering System, Atomic Layer Deposition, RTP/Annealing System, Optical Lithography (Karl Suss MA6 Mask Aligner), Maskless Lithography (Intelligent SF-100 Xpress), Inductively Coupled Plasma (ICP) Reactive Ion Etching (RIE), Cascade Four-Probe Station with Keithley SCS 4200 parameter analyzer, Atomic Force Microscopy (AFM), Transmission Electron Microscopy (TEM) cross-section sample preparation, Wet Bench, Inductively Coupled Plasma (ICP) Reactive Ion Etching (RIE), Plasma Asher, Ellipsometer, Stylus Profilometer, Optical Profilometer, Optical Microscope, solution based electrochemical cell, Contact Angle, Good Experience of working in clean room.

Organizational / Managerial skills

- Ability to work independently and in a team of research group gained during PDF, RA, SRF and JRF positions.
- Capability to manage students up to 120 numbers & Teaching Assistants gained during Assistant Prof. Position.
- Good organizational and managerial skills gained in Assistant Professor Position.

Digital competence

- Good command on Windows, Microsoft office/Google (Word, Excel, and PowerPoint), AI Tools, and Linux OS.
- Decent knowledge of Origin, Matlab, Vivado / Xilinx ISE Design Suite, Keil u-vision, Tanner, AVR studio, Cadence Virtuoso, and Encounter.

Other skills

- Hard working, eager to learn new things and like to read scientific articles and technology trends.

Hobbies

- Listening to Music, Playing Cricket, Indoor Games, and strategy-based mobile Games.

## ADDITIONAL INFORMATION

Honors and Awards

- ANRF Prime Minister Early Career Research Grant, 2025
- IEEE Senior Member, 2022
- Science & Engineering Research Board (SERB) Start-up Research Grant (SRG), 2019
- Alexander von Humboldt Research Fellowship for Postdoctoral Researchers, Germany, 2018
- Senior Research Fellowship, MHRD, Indian Institute of Technology (IIT) - Mandi, Mandi (H.P.), India, 2015-2017
- Indian Nanoelectronics User's Program (INUP) User, Indian Institute of Science (IISc), Bangalore, 2015-16
- Junior Research Fellowship, MHRD, Indian Institute of Technology (IIT) - Mandi, Mandi (H.P.), India, 2013-2015
- Best Poster Award at The Research Fair Anusandhan'2014, Indian Institute of Technology (IIT), Mandi, H.P. 2014
- **Reviewer** – IEEE Transactions on Electron Devices, IEEE Electron Device Letters, IEEE Transactions on Nanotechnology, ACS Nano, ACS Appl. Elec. Mat., and so on.

Activities

## Annexure – I

## LIST OF PROJECTS and PUBLICATIONS

## Projects

1. Development of eco-friendly, flexible perovskite ABX<sub>3</sub> (A = Fa, Cs; B = Ge, Sn; C = Cl, Br, I) quantum dot-based solar cell devices with NiO hole transport layer & Zn(OxSy) electron transport layer," **Indian National Academy of Engineering (INAE) India-Taiwan Programme of Cooperation in Science & Technology**, PI: R. Khosla (India), Z.-L. Tseng (Taiwan), 2025-2028 (~INR 45.5 Lakhs).
2. Development of Josephson Junction based devices and integration with resonators for quantum computing applications," **Board of Research in Nuclear Sciences (BRNS)**, PI: R. Khosla, Co-PI(s): S. K. Sharma, R. Singh, S. Choudhary, PC: S. Joshi, Co-PC(s): P. Shukla, A. Jain, 2025-2028 (~INR 38.59 Lakhs).
3. Development of CMOS-compatible ferroelectric HfZrOx and AlScN based semiconductor devices for non-volatile memory applications," **Anusandhan National Research Foundation (ANRF) Prime Minister Early Career Research Grant (ECRG)**, PI: R. Khosla, 2025-2028 (~INR 64.59 Lakhs).
4. Development of coating recipes using Atomic layer thin film deposition (ALD) for coating on Ball bearing components", **Indian Space Research Organization (ISRO)**, PI: S. K. Sharma, Co-PI: R. Khosla, R. Singh, 2025-2027 (~INR 33.05 Lakhs).
5. Design and Development of Hybrid Metal Complexes Based Resist for Next Generation EUV Technology," **EMD MERCK USA**, PI: S. K. Sharma, Co-PI(s): A. Dhir, R. Khosla, B. Mondal, R. Singh, 2024-2027 (\$2,43,310/- = ~INR 2.01 Crores).
6. Integration of digital olfaction with a television, **iHub & HCI Foundation, IIT Mandi**, PI: S. R. Chowdhury, Co-PI(s): A. B. Pawar, A. Chakraborty, A. Nigam, A. Singh, T. Basak, B. Mondal, M. Das, R. V. Vakacharla, D. Singh, P. Mahish, R. Khosla, 2024-2025, (~INR 1.07 Crores).
7. Micro/Nano-electronic devices development for switching and storage applications," **IIT Mandi Seed Grant**, PI: R. Khosla, 2023-2025 (~INR 15 Lakhs).
8. Integration of organic ferroelectric and two-dimensional (2D) material for High Mobility Flexible Ferroelectric Field Effect Transistor and Negative Capacitance Field Effect Transistor Applications, **SERB SRG**, PI: Dr. R. Khosla, Asst. Prof., NIT Silchar, ₹30 Lakhs (2019-2021). (could not avail due to overlap with Humboldt Fellowship project on "High Mobility CMOS compatible Ferroelectric HfO<sub>2</sub>/GeSn based gate stack for non-volatile Ferroelectric Field Effect Transistor applications," **Alexander von Humboldt Stiftung/Foundation**, 2670-3016 Euros p.m. (2019-2021)

## Peer-reviewed articles in International Journals

1. S. -A. Chen, Z.-L. Tseng, C.-C. Hsu, **R. Khosla**, M.-T. Yen, S.-H. Chang, "Emission-Controlled FAPBI3-xBRx Perovskite Quantum Dots via TOAB-induced ligand anion exchange," **Surface Review and Letters**, pp. 2641011, 2026. doi: [10.1142/S0218625X26410118](https://doi.org/10.1142/S0218625X26410118)
2. S. Gorski, D. Dhiman, D. Rambabu, K. Robeyns, **R. Khosla**, and A. Dhir, "Excited-state AIE material for differential recognition of toxic hair color ingredients: towards functional device applications," **J. Mater. Chem. C**, vol. 14, pp. 1586, 2026. doi: [10.1039/D5TC03630E](https://doi.org/10.1039/D5TC03630E)
3. Z.-L. Tseng, K. Uma, C.-H. Wu, T.-W. Shen, R. Khosla, X.-J. Guan, W.-K. Hung, "Diverse Bimetallic MOF Polymorphs for the Degradation of Pollutants/Antibiotics and Quantum Dot Integration for Enhanced WLED Performance," **Alexandria Engineering Journal**, vol. 130, pp. 35, 2025. doi: [10.1016/j.aej.2025.09.006](https://doi.org/10.1016/j.aej.2025.09.006)
4. A. K. Yadav, S. Anand, and **R. Khosla**, "Impact of Gate Dielectric and Doping Concentration on the Si Fork-Sheet FET for Next Generation CMOS Technology," **Materials Science & Engineering B**, vol. 322, pp. 118655, 2025. doi: [10.1016/j.mseb.2025.118655](https://doi.org/10.1016/j.mseb.2025.118655)
5. S. Mourya, K. Uma, S. K. Sharma, T. -W. Shen, R. Khosla, L. -C. Chen, Z. L. Tseng, "Unveiling DDAB-Driven Surface Passivation and Charge Dynamics in CsPb(Br<sub>0.8</sub>I<sub>0.2</sub>)<sub>3</sub> Quantum Dots: Interactions with Anthraquinone and Benzoquinone," **Materials Science in Semiconductor Processing**, vol. 200, pp. 109901, 2025. doi: [10.1016/j.mssp.2025.109901](https://doi.org/10.1016/j.mssp.2025.109901)
6. S. Mattaparthi, S. K. S. Bonal, Z. L. Tseng, and **R. Khosla**, "Numerical assessment of CsXY<sub>3</sub> (X=Ge, Sn; Y=Cl, Br, I) perovskites unified with NiO & Zn(O<sub>0.25</sub>S<sub>0.75</sub>) for solar cell applications," **physica status solidi (a) applications and materials science**, 2500209, 2025. doi: [10.1002/pssa.202500209](https://doi.org/10.1002/pssa.202500209)
7. A. K. Yadav, C. V. Kumar, G. S. Baghel, and **R. Khosla**, "Performance and Reliability Assessment of Source Work Function Engineered Charge Plasma based Al/HfO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub>/Ge, Double Gate TFET," **Engineering Research Express**, vol. 6, pp. 025323, 2024. doi: [10.1088/2631-8695/ad3c14](https://doi.org/10.1088/2631-8695/ad3c14)
8. A. K. Yadav, S. P. Malik, G. S. Baghel, and **R. Khosla**, "Influence of Charge Traps on Charge Plasma-Germanium Double-Gate TFET for RF/Analog & low-power switching applications," **Microelectronic Reliability**, vol. 153, pp. 115312, 2024. doi: [10.1016/j.microrel.2023.115312](https://doi.org/10.1016/j.microrel.2023.115312)
9. C. V. Kumar, A. K. Yadav, A. Deka, and **R. Khosla**, "Investigating the Effects of Doping Gradient, Trap Charges, and Temperature on Ge Vertical TFET for Low Power Switching and Analog Applications," **Material Science and Engineering B**, vol. 299, pp. 116996, 2024. doi: [10.1016/j.mseb.2023.116996](https://doi.org/10.1016/j.mseb.2023.116996)
10. S. Mattaparthi, D. K. Sinha, A. Bhura, and **R. Khosla**, "Design of an eco-friendly perovskite Au/NiO/FASnI<sub>3</sub>/ZnO<sub>0.25</sub>S<sub>0.75</sub>/FTO, device structure for solar cell applications using SCAPS-1D," **Results in Optics**, vol. 12, pp. 100444, 2023. doi: [10.1016/j.rio.2023.100444](https://doi.org/10.1016/j.rio.2023.100444)

11. S. Sharma, **R. Khosla**, S. Das, H. Shrimali and S. K. Sharma, "Two-Dimensional Van der waals Hafnium Disulfide and Zirconium Oxide based Micro-IDE Transistors," *IEEE Transactions on Electron Devices*, vol. 70, pp. 1520, 2023. doi: [10.1109/TED.2022.3202510](https://doi.org/10.1109/TED.2022.3202510)
12. S. Choudhary, D. Schwarz, H. S. Funk, D. Weißhaupt, **R. Khosla**, S. K. Sharma, and J. Schulze, A Steep Slope MBE Grown thin p-Ge Channel FETs on Bulk Ge-on-Si using HZO internal Voltage Amplification, *IEEE Transactions on Electron Devices*, vol. 69, pp.2725, 2022. doi: [10.1109/TED.2022.3161857](https://doi.org/10.1109/TED.2022.3161857)
13. S. Rathaur, **R. Khosla** and S. K. Sharma, Metal (Pt) / Ferroelectric (SrBi2Ta2O9) / Insulator (La2O3) / Semiconductor (Si), MFIS structures for non-volatile memory applications, *Appl. Phys. Lett.*, vol. 119, pp. 063505, 2021. doi: [10.1063/5.0055792](https://doi.org/10.1063/5.0055792)
14. **R. Khosla** and S. K. Sharma, Integration of Ferroelectric Materials: An Ultimate Solution for Next-Generation Computing and Storage Devices, *ACS Applied Electronic Materials*, vol. 3 (7), pp. 2862-2897, 2021. doi: [10.1021/acsaem.0c00851](https://doi.org/10.1021/acsaem.0c00851)
15. **R. Khosla**, D. Schwarz, H. S. Funk, K. Guguieva, and J. Schulze, High-quality Remote Plasma Enhanced Atomic Layer Deposition of Aluminum Oxide thin films for nanoelectronics applications, *Solid State Electronics*, vol. 185, pp. 108027, 2021. doi: [10.1016/j.sse.2021.108027](https://doi.org/10.1016/j.sse.2021.108027)
16. S. Choudhary, D. Schwarz, H. S. Funk, **R. Khosla**, S. K. Sharma, and J. Schulze, "Impact of Charge Trapping On Epitaxial p-Ge-on-p-Si and HfO2 Based Al/HfO2/p-Ge-on-p-Si/Al Structures Using Kelvin Probe Force Microscopy and Constant Voltage Stress," *IEEE Transactions on Nanotechnology*, vol. 20, pp. 346-355, 2021. doi: [10.1109/TNANO.2021.3069820](https://doi.org/10.1109/TNANO.2021.3069820)
17. M. Jangra, D. S. Arya, **R. Khosla**, and S. K. Sharma, "Maskless lithography: an approach to SU-8 based sensitive and high-g Z-axis polymer MEMS accelerometer", *Microsyst Technol*, vol. 27, pp. 2925–2934, 2021. doi: [10.1007/s00542-021-05217-0](https://doi.org/10.1007/s00542-021-05217-0)
18. P. P. Goswami, **R. Khosla**, and B. Bhowmick, "RF analysis and temperature characterisation of pocket doped L-shaped gate Tunnel FET," *Applied Physics A*, vol. 125, pp. 733, 2019. doi: [10.1007/s00339-019-3032-8](https://doi.org/10.1007/s00339-019-3032-8)
19. S. Sharma, S. Das, **R. Khosla**, H. Shrimali and S. K. Sharma, "Realization and Performance Analysis of Facile-Processed  $\mu$ -IDE-Based Multilayer HfS2/HfO2 Transistors," *IEEE Transactions on Electron Devices*, vol. 66, no. 7, pp. 3236-3241, 2019. doi: [10.1109/TED.2019.2917323](https://doi.org/10.1109/TED.2019.2917323)
20. S. Sharma, S. Das, **R. Khosla**, S. K. Sharma, and H. Shrimali, "Highly UV sensitive Sn Nanoparticles blended with polyaniline onto Micro-Interdigitated Electrode Array for UV-C detection applications," *Journal of Materials Science: Materials in Electronics*, vol. 30, pp. 7534, 2019. doi:[10.1007/s10854-019-01067-9](https://doi.org/10.1007/s10854-019-01067-9)
21. S. Sharma, **R. Khosla**, S. Das, H. Shrimali, and S. K. Sharma, "High Performance CSA-PANI based Organic Phototransistor by Elastomer Gratings," *Organic Electronics*, vol. 57, pp. 14-20, 2018. doi: [10.1016/j.orgel.2018.02.031](https://doi.org/10.1016/j.orgel.2018.02.031)
22. **R. Khosla** and S. K. Sharma, "Frequency Dispersion and Dielectric Relaxation in Post Deposition Annealed high-k Erbium Oxide (Er2O3) Metal-Oxide-Semiconductor Capacitors," *Journal of Vacuum Science & Technology B*, vol. 36, no. 1, pp. 012201, 2018. doi: [10.1116/1.4995809](https://doi.org/10.1116/1.4995809)
23. J. S. Malhotra, A. K. Singh, **R. Khosla**, S. K. Sharma, G. Sharma, and S. Kumar, "Investigations on structural, optical and magnetic properties of Fe and Dy co-doped ZnO nanoparticles," *Journal of Materials Science: Materials in Electronics*, vol. 29, pp. 3850, 2017. doi: [10.1007/s10854-017-8321-4](https://doi.org/10.1007/s10854-017-8321-4)
24. S. Sharma, **R. Khosla**, H. Shrimali, and S. K. Sharma, "Fluorine-Chlorine co-doped TiO2/CSA doped Polyaniline heterostructure for UV detection applications," *Sensor and Actuators A*, vol. 261, pp. 94, 2017. doi: [10.1016/j.sna.2017.04.043](https://doi.org/10.1016/j.sna.2017.04.043)
25. P. Kumar, **R. Khosla**, M. Soni, D. Deva and S. K. Sharma, "A highly sensitive, flexible SERS sensor for Malachite green detection based on Ag decorated microstructured PDMS substrate fabricated from Taro leaf as template," *Sensors & Actuators B*, vol. 246, pp. 477, 2017. doi: [doi.org/10.1016/j.snb.2017.01.202](https://doi.org/10.1016/j.snb.2017.01.202)
26. **R. Khosla**, E. G. Rolseth, P. Kumar, S. S. Vadakupudhupalayam, S. K. Sharma and J. Schulze, "Charge Trapping Analysis of Metal/Al2O3/SiO2/Si, Gate Stack for Emerging Embedded Memories," *IEEE Transactions on Device and Materials Reliability*, vol. 17, no. 1, pp. 80-89, 2017. doi: [10.1109/TDMR.2017.2659760](https://doi.org/10.1109/TDMR.2017.2659760)
27. P. Kumar, **R. Khosla**, and S. K. Sharma, "Nanoscale investigations: Surface potential of rare-earth oxide (Re2O3) thin films by kelvin probe force microscopy for next generation CMOS technology," *Surfaces and Interfaces*, vol. 4, pp. 69, 2016. doi: [10.1016/j.surf.2016.08.003](https://doi.org/10.1016/j.surf.2016.08.003)
28. M. Soni, T. Arora, **R. Khosla**, P. Kumar, A. Soni and S. K. Sharma, "Integration of Highly Sensitive Oxygenated Graphene With Aluminum Micro-Interdigitated Electrode Array Based Molecular Sensor for Detection of Aqueous Fluoride Anions," *IEEE Sensors Journal*, vol. 16, no. 6, pp. 1524-1531, 2016. doi: [10.1109/JSEN.2015.2505782](https://doi.org/10.1109/JSEN.2015.2505782)
29. **R. Khosla**, P. Kumar, and S. K. Sharma, "Charge Trapping and Decay Mechanism in Post Deposition Annealed Er2O3 MOS Capacitors by Nanoscopic and Macroscopic Characterization," *IEEE Transactions on Device and Materials Reliability*, vol.15, no.4, pp. 610-616, 2015. doi: [10.1109/TDMR.2015.2498310](https://doi.org/10.1109/TDMR.2015.2498310)



30. D. K. Sharma, **R. Khosla**, and S. K. Sharma, "Multilevel metal/Pb(Zr<sub>0.52</sub>Ti<sub>0.48</sub>)O<sub>3</sub>/TiO<sub>x</sub>Ny/Si for next generation FeRAM technology node," *Solid-State Electronics*, vol. 111, pp. 42, 2015. doi: [10.1016/j.sse.2015.04.006](https://doi.org/10.1016/j.sse.2015.04.006)
31. **R. Khosla**, D. K. Sharma, and S. K. Sharma, "Effect of electrical stress on Au/Pb(Zr<sub>0.52</sub>Ti<sub>0.48</sub>)O<sub>3</sub>/TiO<sub>x</sub>Ny/Si gate stack for reliability analysis of ferroelectric field effect transistors," *Appl. Phys. Lett.*, vol. 105, pp. 152907, 2014. doi: [10.1063/1.4897952](https://doi.org/10.1063/1.4897952)

#### National/ International Conferences/ Proceedings

1. M. Chauhan, K. Palit, A. Joshi, R. Singh, A. Dhir, **R. Khosla**, B. Mondal, S. K. Sharma, R. Dammel, "Hybrid metal-organic clusters resist for next-generation high-NA EUV lithography," *Proc. SPIE, Advances in Patterning Materials and Processes XLIII*, San Jose, California, United States, vol. 13983, pp. 627-633, Apr 2026.
2. D. Dhiman, S. Mondal, S. R. Chowdhury, **R. Khosla**, "SnO<sub>x</sub> nanostructures micro-interdigitated electrodes structure sensor for artificial olfaction systems," *IEEE 7th International Conference on Emerging Electronics (ICEE)*, Bengaluru, India, 2025, pp. 1-4.
3. M. Chauhan, P. Kumar, R. Singh, A. Dhir, **R. Khosla**, B. Mondal, S. K. Sharma, R. Dammel, R. Kanjolia, High-performance metal organic cluster resists for high-NA extreme ultraviolet lithography", *Proc. SPIE 13428, Advances in Patterning Materials and Processes XLII*, San Jose, California, United States, 1342809, 2025.
4. A. K. Yadav, S. Anand, and **R. Khosla**, Investigation of TiN/HfO<sub>2</sub>/SiO<sub>2</sub>/Si gate stack-based Forksheet Transistor for Next Generation CMOS Technology, *National Conference on Emerging Micro/Nano-Electronics: Devices, Technology & VLSI Design (EMNE)*, Kurukshetra, 2025.
5. A. K. Yadav, S. P. Malik, G. S. Baghel, and **R. Khosla**, Current Status and Future Perspectives of Tunnel Field Effect Transistors for Low Power Switching Applications, *3rd International Conference on Micro and Nanoelectronics Devices, Circuits and Systems, Springer Lecture Notes in Electrical Engineering*, vol. 1067, pp. 159-177, 2024.
6. S. P. Malik, A. K. Yadav, and **R. Khosla**, Design and Simulation of Si and Ge Double-Gate Tunnel Field-Effect Transistors with High-κ Al<sub>2</sub>O<sub>3</sub> Gate Dielectric: DC and RF Analysis, *2nd International Conference on Micro and Nanoelectronics Devices, Circuits and Systems, Springer Lecture Notes in Electrical Engineering*, vol. 904. Springer, Singapore, pp. 215–226, 2023.
7. M. Jangra, D. S. Arya, **R. Khosla**, and S. K. Sharma, Design and Simulation of Capacitive Z-axis MEMS Accelerometers using SU-8, PolySi, Si<sub>3</sub>N<sub>4</sub>, and SiC based structural materials, *IEEE 5th International Conference on Emerging Electronics (ICEE)*, IIT Delhi, Nov 2020.
8. **R. Khosla** and S. K. Sharma, Impact of Au/Al metal electrodes on Metal/PZT/TiO<sub>x</sub>Ny/Si, MFIS structure for next-generation FeRAM, 3rd ISSC National Conference, pp. 550, 2017.
9. P. Kumar, M. Soni, T. Arora, **R. Khosla** and S. K. Sharma, Highly Sensitive SERS Sensors Based on Ag coated Self Assembled Colloidal Crystals for Detection of Contaminants in Water, International Conference on Materials Science & Technology (ICMST), Delhi University, India, March 2016.
10. B. Singh, **R. Khosla**, and S. Bala, "Implementation of Efficient Object Detection Algorithm on FPGA," *Advancements in Engineering, Technology and Management (AETM)*, vol. 6, pp. 22, 2015.
11. D. K. Sharma, **R. Khosla**, and S. K. Sharma, "High performance Au/PZT/TiO<sub>x</sub>Ny/Si MFIS structure for next generation ferroelectric memory applications," *AIP Conf. Proc.*, vol. 1661, pp. 060007, 2015.
12. **R. Khosla**, D. K. Sharma, and S. K. Sharma, "Reliability evaluation of erbium oxide thin films as gate dielectric for CMOS technology," *Int. Conf. on Multifunctional Materials, Structures, and Applications (ICMMSA)*, pp. 192, 2014.
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## Media Reports

1. Our recent work is highlighted in PV Magazine: "Indian researchers design 31.57% efficient, lead-free perovskite solar cell device" link: [Indian researchers design 31.57% efficient, lead-free perovskite solar cell device](https://pv-magazine-india.com/indian-researchers-design-31-57-efficient-lead-free-perovskite-solar-cell-device/) — pv magazine India ([pv-magazine-india.com](https://pv-magazine-india.com/))

