

# **Dr R K BHARADWAJ ( M.Sc, Ph.D)**

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## **CAREER OBJECTIVE:**

*I seek to contribute my knowledge, education skills and experience. In Physics/Electronics to be innovative and to obtain a challenging position to serve and grow with any organization by valuing the social and moral ethics. This will add value for the excellence of the organization.*

## **SKILLS SUMMARY:**

*I am hardworking sincere and highly motivated with excellent communication and interpersonal skills supported with strong educational background in the area of Electronics, Semiconductor Etching. **I have been visited USA two times to present a paper in International Conference. I have more than 15 years teaching and research experience.***

## **ACADEMIC QUALIFICATIONS:**

1. **Ph.D. (Physics)**, 2008, Panjab University, Chandigarh, India.
2. **M.Tech (IT)** ( From Karnataka State Open University, January 2012)
3. **M.Sc. (Physics) specialization Electronics** from C C S University, Meerut, India (1994, 1<sup>st</sup> Division 60.6%)
4. **B.Sc. Honors** (Physics, Mathematics and Statistics) from Meerut University, Meerut (1992, 1<sup>st</sup> Division 68.8 %)
5. **Senior Secondary** Non-Medical, UP Board, Allahabad (1989; 57.4 % )
6. **Matriculation** (10<sup>th</sup>) from UP Board, Allahabad (1987; 67.2 % )

## **Ph.D. SUPERVISORS:**

### **1. Dr. R P Bajpai**

Ex-Vice-Chancellor, Kurukshetra University &

Ex-Vice Chancellor, G J University, Hissar, INDIA

### **2. Dr. L M Bharadwaj**

Ex-Head & Deputy Director

Biomolecular Electronics and Nanotechnology Division

Central Scientific Instruments Organization, Sector-30, Chandigarh-160030, INDIA

## **CONCLUSION OF RESEARCH WORK:**

Electron Cyclotron Resonance (ECR) technique is optimized for Semiconductors etching & Silicon based material specially Si, SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub> using reactive chemistry in Chemically Assisted Plasma Etching (CAPE) and Reactive Ion Etching (RIE) mode. The results suggested that with independent control of various etch parameter like fellow of gases, mixture of gases, Pressure, Input/Output Power including substrate environment and position. **ECR etching has high potential for development of tailored etch chemistry for selective & anisotropy etching of fine pattern for VLSI and hybrid device fabrication.**

## **PERSONAL DETAIL:**

<b>DATE OF BIRTH</b>	April 01, 1975
<b>NATIONALITY</b>	Indian
<b>LANGUAGES</b>	Hindi, English and Punjabi
<b>MARITAL STATUS</b>	Married

## **PUBLISHED SCIENTIFIC PAPERS:**

- 1 “A Comparative study of ECR based Chemically Assisted Plasma Etching of GaAs & Silicon”** Paripex – Indian journal of Research Vol-3 Issue 5, June 2013 ISSN -2250-1991 (PP 243-244) Ashutosh Bilves & R K Bharadwaj.
- 2 “A Survey on the Chemical Assisted Plasma Etching of Semiconductors”** Paripex – Indian journal of Research Vol-2 Issue 4, April 2013 ISSN -2250-1991 (PP 306-307) Ashutosh Bilves & R K Bharadwaj
- 3 “Characterization of ECR Etching for Si, SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub> in reactive Ion Etching and Chemically Assisted Plasma Etching Mode”** R K Bharadwaj, Prem Singh, Ashutosh Bilves Purva Mimaansa A Multi Disciplinary Research Journal Vol 4, No 1-2 , March – September 2013 PP 85-92, ISSN 0976-0237.
- 4 “Electron Cyclotron Resonance Based Chemically Assisted Plasma Etching Of Silicon in CF<sub>4</sub>/Ar Plasma”** R. K. Bharadwaj, S. K. Angra, R. P. Bajpai, Madan Lal and Lalit M. Bharadwaj AIP Conference Proceedings Volume 788, Issue 1, pp. 343-348, 2005 ISSN 0094243X.
- 5 “ECR based chemically chemical etching of GaAs”** R. K. Bharadwaj, Lalit M. Bharadwaj, S. K. Angra and R. P. Bajpai, International Conference on GaAs, May, 2004, USA. ISBN 1893580059
- 6 “Etching of GaAs in RIE & CAPE mode – Characterization of surface layer”** R. K. Bharadwaj, S. K. Angra, R. P. Bajpai, Nirmal Singh and Lalit M Bharadwaj International Conference on Compound Semiconductor April 14-17, 2008, Chicago, USA. ISBN978-1-89358-011-4

- 7 **“Etching of Silicon in RIE & CAPE mode”** R. K. Bharadwaj, S. K. Angra, Lalit M. Bharadwaj, R. P. Bajpai National symposium on Instrumentation (NSI-28), November, 2003 Pantnagar (India).
- 8 **“An Improvised Metallic Stub For SEM Examinations”** M.L Sharma, Jasvirsingh, HPS kang, R. K. Bharadwaj, Sanjeev kumar XXVI Annual Conference on Electron Microscopy & Allied Fields, April 2003, Shimla (India).
- 9 **“ECR based plasma assisted ion chemical etching of silicon”** R. K. Bharadwaj International Conference on Characterization and metrology for ULSI technology, Austin, March 2003, Texas, USA. ISBN 0735401527 & ISBN :13: 9780735401525
- 10 **“Etching of Silicon”** R. K. Bharadwaj Institute of Physics (IOP), January 2003, London, UK.
- 11 **“ECR plasma assisted chemical etching of semiconductors”** Lalit M. Bharadwaj, S. K. Angra, R. K. Bharadwaj, and R. P. Bajpai National symposium on Science & Technology of Vacuum and Thin films (IVSNS-2001) September 2001, Mumbai (India).
- 12 **“ECR Based Chemically Assisted Plasma Etching of Silicon in CF<sub>4</sub>/O<sub>2</sub> Plasma”** R. K. Bharadwaj, S. K. Angra, R. P. Bajpai & Lalit M Bharadwaj 12<sup>th</sup> Brazilian workshop on Semiconductor Physics April 2005, Brazil.
- 13 **“Nanodevices based on Biomotors”** International Conference On Nano Sensores & Technology (ICNST-2010) Rajesh Kumar, R K Bharadwaj, Sheenam, Lalit M Bharadwaj , Arun K Lall at Central Scientific Instruments Organization (CSIO), on October 28-30, 2010 Chandigarh, India.

#### **WORKSHOPS/CONFERENCES/SEMINARS ATTENDED:**

1. Attend an **“International Conference on Quark- Gluon Plasma”** on March 29-31, 1997 at University of Rajasthan, Jaipur.
2. Attended a workshop on **“Curriculum Development”** on July 12 – 14, .2000 at Technical Teachers Training Institutes, sector 26, Chandigarh.
3. Attend **“IETE 45<sup>th</sup> Annual Technical Convention on Nanotechnology”** from September 30 to October 01, 2002 at CSIO, Chandigarh.
4. Attend a **“16<sup>th</sup> Workshop on Scanning Electron Microscopy”** on January 4-6, 2003 at Regional Sophisticated Instrumentation Centre, Panjab University, Chandigarh.
5. Attend a **“Workshop on Analytical Instruments”** on March 26-28, 2003 at Regional Sophisticated Instrumentation Centre, Panjab University, Chandigarh.
6. Attend **“Twelfth International Workshop on Physics of Semiconductor Devices 2003”** (IWPSD 2003) on December 16-20, 2003 at IIT Madras.
7. Attend **“Indian National Academy of Engineering Conference on Nanotechnology”** (ICON-2003) on December 22-25, 2003 at CSIO, Chandigarh.
8. **Visit USA to present a paper in International Conference on May 3-6, 2004 at Miami Beach, Florida, USA.**

9. **Visit USA to present a paper in International Conference on April 14-17, 2008 at Chicago, USA.**
10. Attend a **National level seminar on “Emerging Trends in Nanotechnology”** on March 30-31, 2010 at S D College, Ambala.
11. Attend **“FICCI India Innovation Growth Programme 2011”** on 24<sup>th</sup> Dec 10 at Chandigarh.
12. Attend **“International Conference On Nano Sensores & Technology (ICNST-2010)”** at Central Scientific Instruments Organization (CSIO), on October 28-30, 2010 Chandigarh, India
13. Attend a **National Level Seminar on E- governance and won the prize** on May 23, 2009 at GVM Institute of Management & Technology at Murthal, Haryana.
14. Attend **“FICCI India Innovation Growth Programme 2014”** on 10th Jan 14 at Chandigarh.

**MASTERS DEGREE (M.Phil.)CANDIDATES GUIDED :**

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**LIST OF PUBLISHED BOOKS:**

1. Applied Physics-I ( for Himachal Pradesh Board by Eagle Prakashan)
2. Applied Physics-II ( for Himachal Pradesh Board by Eagle Prakashan)
3. Applied Physics –II ( for J&K Board by Eagle Prakashan)

**EXTRA CURRICULUM ACTIVITIES:**

1. Organize Blood donation camp in ICL college campus on 28<sup>th</sup> April, 2010 by GMC&H, Sector 32, Chandigarh.
2. Organize Blood donation camp in ICL college campus on 22<sup>nd</sup> February, 2011 by PGIMER, Sector 12, Chandigarh
3. Blood Donations more than 30 times (Master Card) and received award from Mrs. Jean Rodrigues (Wife of Ex-Governor of Punjab)
4. National Credit Core (NCC) “B” Certificate.
5. National Service Scheme 180 and 240 hours camp certificate.
6. 1<sup>st</sup> place in Chess at College level.

Signature