

## Curriculum Vite

A. Name and full address: Dr. Ravi Chand Singh  
Department of Physics  
Guru Nanak Dev University, Amritsar 143005.

B. Academics : Ph. D.

C. Position held : Lecturer Sept.1993 – Mar. 2003, GNDU Amritsar.  
Reader Apr. 2003 - Till Date, GNDU Amritsar.

1. email id: [ravichand.singh@gmail.com](mailto:ravichand.singh@gmail.com).
2. Area of research interests: Sensors, Physics Education, Radiation Physics
3. Research Publications: See list at the end
4. Papers presented in conferences/ Symposium: See list at the end
5. Books Published: None
6. Major Research projects (Complete/ Ongoing/ Submitted): “Quantum computing using nuclear resonance techniques” Arvind (PI), myself Co-PI, Rs. 10,29,000/- , DST, 3years, Completed August 2007.
7. “Preparation of Thin/Thick Film of Nanostructured Metal-Oxide materials and their application as gas sensors” Rs. 9,30,800/- , UGC , on going (1. 5. 09--).
8. Consultancy provided: None
9. Patents: One  
“Transition metal oxide films and gas sensors thereof”  
US Pat. # 5,342,701 August 30, 1994.  
Bijan K. Miremadi, Ravi C. Singh, Stanley R. Morrison and Konrad Colbow.
10. Major research facilities/ equipment available: Spin Coater, Furnaces.
11. Ph D theses supervised: Awarded -1, Registered - Three , Enrolled – 2
12. M. Phil – 1- Completed, 2 -Working
13. M Sc. dissertations supervised: 28
14. Thrust Area: Our group is actively engaged in the field of material research and physics education .
  - In material research , we synthesize nano particles of various metal oxides characterize them and investigate their properties for gas sensor applications.



5. Fabrication and characterisation of “self-binding” nanocrystalline SnO<sub>2</sub> powder based thick film ethanol sensor.  
Manmeet Pal Singh, Paramdeep Singh Chandi and **Ravi Chand Singh**.  
*J. Non-Crystall. Solids*, **355** (2009) 1908-1911.
6. Electrochemical etching technique for neutron dosimetry.  
**Ravi Chand Singh**, Manwinder Singh and H. S. Virk.  
*Indian J. Phys.*, **83** (2009) 827-832.
7. Synthesis of zinc oxide nanorods and nanoparticles by chemical route and their comparative study as ethanol sensors.  
**Ravi Chand Singh**, Onkar Singh, Manmeet Pal Singh and Paramdeep Singh Chandi.  
*Sensors and Actuators B Chem.*, **135** (2008) 352-357.
8. Synthesis of nano-crystalline tin oxide powder through fine crystallization in liquid phase.  
Manmeet Pal Singh, Paramdeep Singh Chandi and **R. C. Singh**.  
*Optoelectronics and Advanced Materials – Rapid Communications* **1(10)** (2007) 500-502.
9. Random sampling of and alternating current source: A tool for teaching probabilistic observations.  
Arvind, PS Chandi, **R C Singh**, D Indumathi and R Shankar.  
*Am. J. Phys.* **72(1)** (2004) 76-82.
10. Highly sensitive and selective hydrogen gas sensor from thick oriented films of MoS<sub>2</sub>.  
Bijan K, **Ravi C Singh**, S Roy Morrison and Konrad Colbow.  
*App. Phys. A* **63** (1996) 271-275.
11. Alternate approach to fast neutron dosimetry.  
HS Virk and **Ravi Chand Singh**.  
*Indian J. Pure & Appl. Phys.*, **32** (1994) 526-527.
12. Chromium oxide gas sensors for the detection of hydrogen, oxygen and nitrogen oxide.  
B K Miremadi, **R C Singh**, Z Chen, S R Morrison and K Colbow.  
*Sensors and Actuators B Chem.*, **21(1)** (1994) 1-4.
13. Role of polarization and tensile strength in the process of electrochemical etching (ECE).  
**R C Singh** and H S Virk.  
*Nucl. Tracks and Radiat. Meas.*, **18** (1991) 419-421.
14. Anomalous behavior of environment affected CR-39 at elevated temperatures.  
R K Bhatia, **Ravi Chand Singh** and H S Virk.  
*Nucl. Instr. and Meth.*, **B 46** (1990) 358.
15. Preparation of and application of micro filters.  
**Ravi Chand Singh**, R K Bhatia and H S Virk.  
*Indian J Pure and Appl. Phys.*, **27** (1989) 285-286.

16. The influence of etching conditions on the efficiency and critical angle of plastic track detector Makrofol-N.  
R K Bhatia, **Ravi Chand Singh** and H S Virk.  
*Indian J Pure and Appl. Phys.*, **27** (1989) 249-250.
  17. Effect of variation of incident angle of alpha particles at various field strengths on ECE response of CR-39.  
**Ravi Chand Singh** and H S Virk.  
*Nucl. Instr. and Meth.*, **B 36** (1989) 332-334.
  18. Electrochemical etching of fission fragment tracks in Cellulose Triacetate.  
**Ravi Chand Singh** and H S Virk.  
*Nucl. Tracks and Radiat. Meas.*, **15** (1988) 301-303.
  19. Annealing study of heavy ion tracks in Makrofol-N using electrochemical etching technique.  
**Ravi Chand Singh** and H S Virk.  
*Indian J Pure and Appl. Phys.*, **26** (1988) 673-674.
  20. Electrochemical etching of fission fragment tracks in muscovite mica and soda lime glass.  
**Ravi Chand Singh** and H S Virk.  
*Nucl. Instr. and Meth.*, **B 30** (1988) 598-600.
  21. Internal heating effect during electrochemical etching of Lexan polycarbonate.  
**Ravi Chand Singh** and H S Virk.  
*Nucl. Instr. and Meth.*, **B 29** (1987) 579-582.
  22. Relation between internal heating effect and track density during electrochemical etching of Lexan polycarbonate.  
**Ravi Chand Singh** and H S Virk.  
*Indian J Pure and Appl. Phys.*, **25** (1987) 237-238.
- Conference Papers:**
23. Nanocrystalline tin oxide powder based gas sensor.  
Manmeet Pal Singh, Robinjeet Singh, P S Chandi and **Ravi Chand Singh**.  
*Proc. 12th National Seminar on Physics and Technology of Sensors, March 7-9, 2007 BARC Mumbai p 96-98.*
  24. Waste water management with biological treatment.  
Manwinder Singh, **R C Singh**, Vijay Kumar and Jagjit Singh.  
*Proc. XII Nat. Symp. on Environment, June 2003, Tehri Garhwal, p 255-258.*
  25. Significant of dielectric properties for electrochemical etching response of a nuclear track detector.  
**Ravi Chand Singh**, A S Sandhu and H S Virk.  
*Proc. XI Nat. Symp. SSNTD October 12-14 1998, Amritsar, p 153 -155.*
  26. The etching characteristic of nuclear tracks in glass detectors.  
AS Sandhu, **R C Singh**, Lakhwant Singh and Surinder Singh.  
*Proc. XI Nat. Symp. SSNTD October 12-14 1998, Amritsar, pp 153-155.*

27. Hydrogen gas sensors.  
**R C Singh** and K Colbow.  
*Sensors-3 (1996) Proc. 3rd National Seminar in Phys. and Tech. of Sensors C6 (1-6), Pune.*
28. Application of precious metals Pt, Pd and Ru in preparation of gas sensors.  
BK Miremadi, **R C Singh**, Z Chen, S Roy Morrison and K Colbow.  
*Precious Metals, 1992 (IPMI) Proc. 16th Int. Precious Metal Conf., Scottsdale Arizona, p169-185.*
29. Electrochromism in nickel oxide films.  
**R C Singh**, K S Sidhu and S S Sekhon.  
*Recent Advances in Fast ion Conducting Materials and Devices, World Scientific Publishing Company (1990) p 531-534.*

#### **Conference/Workshops Attended:**

1. 5<sup>th</sup> National Seminar on SSNTD, SINP Calcutta, March 1987.
2. History and Philosophy of Science, GNDU, Amritsar, March 1987.
3. National Seminar on Atomic Inner Shell Ionization and its analytical application, Punjabi University Patiala, February 1988.
4. 14<sup>th</sup> International Conference on SSNTD, Lahore, Pakistan, April 1988.
5. 6<sup>th</sup> National Seminar on SSNTD, Gauhati University, March, 1989.
6. 1<sup>st</sup> National Conference on Solid State Ionics, GNDU, Amritsar, February, 1994.
7. 3<sup>rd</sup> International Conference on Rare Gas Geochemistry, GNDU, Amritsar, December 1995.
8. 7<sup>th</sup> International Symposium on Radiation Physics (ISRP), Jaipur, February, 1997.
9. National Seminar on Characterization of Semiconductor Materials for Device Application GNDU, Amritsar, October, 1998.
10. 11<sup>th</sup> National Seminar on SSNTD, GNDU, Amritsar, October, 1998.
11. International conference on natural hazards: mitigation and management, Department of physics GNDU Amritsar, March 12-15, 2001
12. 12<sup>th</sup> National symposium on environment, Tehri Garhwal, June 5-7, 2003.
13. National workshop on "Design of innovative experiments for post graduate teaching laboratories" IUAC New Delhi, September 4-6, 2003.
14. Workshop on "Accelerator and environmental radiation safety", IUAC New Delhi,

- April 22-23, 2004.
15. 12<sup>th</sup> National seminar on physics and technology of sensors, BARC, Mumbai, March 7-9, 2007.
  16. Conference on "Accelerator and low level radiation safety", IUAC, New Delhi, April 26-27, 2007.
  17. 15<sup>th</sup> National symposium on solid state nuclear track detectors and their applications, Tehri Garhwal, June 21-23, 2007.
  18. National Workshop on SSNTD, Swami Shukdevanand (PG) College, Shahjahanpur, December, 2007.
  19. UGC Sponsored National Conference on Recent Trends in Material Sciences, DAV College, Amritsar, February, 2009.
  20. UGC Sponsored National Level Conference on Advanced Materials and Nanotechnology, SRG College For Women, Amritsar, February, 2009.
  21. Symposium-cum-workshop on Nanotechnology, DAVIET, February 27, 2010.
  22. X International conference on nanostructured materials NANO 2010, Rome Italy, September 2010.
  23. IAPT Regional Council-2 , National seminar cum workshop on Improving education in physics & related sciences , Akal Sagar Academy Punjab, January 22-23, 2011.