

Sukhbinder Singh Rait

41-B, GH-2, Ankur Apartments, Paschim Vihar, New Delhi – 110063

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CAREER OBJECTIVE

Seeking challenging assignments in the areas of Electronics Design & Development, LED Lighting Solutions, Power Electronics or Photovoltaic System Development and Education Research with a reputed and professionally managed organization.

PROFESSIONAL SUMMARY

- Insightful, multitasking and result oriented Professional with 11+ years of experience in Research & Development, Teaching backed with a Ph D. in Electronics from the University of Delhi.
- Key research areas include Electronics, Nanotechnology, Photovoltaic Systems, OLED / LED Development & Application and Electronic Circuit Design.
- Multi-tasking and detail oriented professional with the ability to proactively adept and deliver results in a dynamic & high pressure environment.
- Collaborative, committed and accountable team player with excellent inter-personal skills.
- Distinction of having authored / co-authored papers in International journals.
- Recognized by the journal Sensors and Actuators A as a 'Valued Reviewer in 2009'.
- Key R&D strengths & other competencies include:
 - Fabrication & characterization of polymer based bulk hetero-junction photovoltaic devices and organic LED's.
 - Conjugated / conducting polymer based photovoltaic devices.
 - Operation and maintenance of equipment including Spectrophotometers, Spectrofluoro Photometers, Keithley Source meters. Spin Coaters, High Vacuum Deposition Units and LED Measurement Systems.
 - Electronic circuits-soldering / de-soldering and LED measurements systems.
 - Photovoltaic system design and LED lighting solutions including thermal and optical characterization.
 - Design and in-house development of new equipments and tools for use in research and development.

COMPUTER PROFICIENCIES

Operating Systems: Windows 95/98/NT/2000/XP/Vista, Windows7 and DOS 6.22

Languages: C, FORTRAN, Turbo Pascal, Visual Basic 6, SQL Server 7.0, Intel 8085,8086,8051, Zilog Z80, Motorola 6800, Rockwell 6502 assembly and Texas Instruments TMS 320C50 DSP, Arduino Programming.

Tools: Electronics Workbench 4.1, 5.0, Data Fit, Origin 6.0, Circuit Maker 5.0, MultiSim 7, Logisim Microwave Office 5.0, Shimadzu UV Probe and RF- PC, Keithley Lab Tracer, Light MTRX 1.0.7 & Spectral Suite, Arduino, PSpice.

Hardware: PC Based Control Systems, Shimadzu UV-2450, RF-5301 PC Spectrometers, Keithley SMU 2400, 2430 and DMM 2000, High Vacuum deposition systems, Labsphere CDS 1100, Integrating Sphere LED measurement systems and Orboptronix TEC-100 LED characterization systems.

PROFESSIONAL WORK EXPERIENCE

Teaching Experience

- Assistant Professor, Department of Electronics, Hansraj College, University of Delhi, Sep'10 - Present
- Assistant Professor, Department of Electronics, SGTB Khalsa College, University of Delhi Jul'09 - May'10
 - Teach practical skills to undergraduate while fostering spontaneous thinking and ideas.
 - Focus on simplifying concepts for quicker and sustained learning by students.

Research Experience

- Doctoral & Post Doctoral Researcher, Materials Laboratory, Department of Electronic Science, University of Delhi South Campus, New Delhi, Aug '03- September'12

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- Provided research guidance to doctoral students and conducted practical training for M.Sc. students.
- Supported operation and maintenance of research equipment to ensure maximum utilization.
- Senior research fellow in a Department of Science & Technology Sponsored Project.

AWARDS

- Certification of recognition as a 'Valued Reviewer in 2009' from the Journal 'Sensors and Actuators A.
- Awarded Best Innovative Idea Award in Innovation Plaza, Antardvani 2015, February 20-22 2015 for Innovation project "Development of an Eco-Friendly, Efficient, Portable Lighting Source Utilizing a Renewable Energy Source and a Solid State Lighting Solution – Solar LED Bulb" (HR-206)
- Awarded Teaching Excellence Award for Innovation at the 93rd Foundation day of University of Delhi on 1st May 2015

ACADEMIC CREDENTIALS

- Ph D in Electronics, Department of Electronic Science, University of Delhi, South Campus, Jan'09.
- M.Sc. in Electronics from Department of Electronic Science, University of Delhi, South Campus. (68.78%)
- B.Sc. (Honors), Electronics, SGTB Khalsa College, University of Delhi (73.80%)
- UGC NET Qualified, June 2012

PUBLICATIONS IN INTERNATIONAL JOURNALS

- "Improving power conversion efficiency in polythiophene/fullerene-based bulk heterojunction solar cells". **Sukhbinder Rait**, Shipra Kashyap, P.K. Bhatnagar, P.C. Mathur, S.K. Sengupta and J. Kumar. Solar Energy Materials & Solar Cells 91 (2007) 757–763.
- "Increased luminance of MEH–PPV and PFO based PLEDs by using salmon DNA as an electron blocking layer". Devinder Madhwal, **S.S. Rait**, A. Verma, Amit Kumar, P.K. Bhatnagar, P.C. Mathur and M. Onoda. Journal of Luminescence 130 (2010) 331–333.
- "Development and Characterization of an Efficient Bio-White Polymer Light Emitting Diode with Red and Green Phosphorescent Dyes as Dopants", Devinder Madhwal, **S. S. Rait**, A. Kumar, A. Verma, K. Tada, M. Onoda, P. K. Bhatnagar and P. C. Mathur. Journal of Materials Science Volume 45, Issue 12 (2010), Page 3300.
- "Self trapping mechanism in green phosphorescent dye doped polymer light emitting diodes", Devinder Madhwal, **S. S. Rait**, A. Verma, A. Kumar, M. Onoda, P. K. Bhatnagar and P. C. Mathur. Physica Scripta 81 (2010) 065701.
- "Enhanced luminance of MEH-PPV based PLEDs using single walled carbon nanotube composite as an electron transporting layer", Inderpreet Singh, Devinder Madhwal, A. Verma, A. Kumar, **S. Rait**, I. Kaur, L.M. Bharadwaj, C.S. Bhatia, P.K. Bhatnagar and P.C.Mathur, Journal of Luminescence Volume 30, Issue 11 (2010) 2157-2160.

INTERNATIONAL CONFERENCES

- "Effect of Composition and Annealing on Polymer/Fullerene based Organic Solar Cells". **Sukhbinder Singh Rait**, Shipra Kashyap, P.K.Bhatnagar and P.C. Mathur. Symposium-M, Photonic Materials & Devices. ICMAT 2005, 3-8 July 2005, SINGAPORE.
- "Recent Trends in Conjugated Polymer Solar Cells". P.K.Bhatnagar, **Sukhbinder Singh Rait**, Shipra Kashyap and P.C.Mathur. IWPSD 2005, 13–17 December 2005 New Delhi, INDIA.
- "Development and Characterization of Polythiophene/Fullerene composite solar cells and their degradation studies". P.K.Bhatnagar, **Sukhbinder Singh** and P.C.Mathur. 10th Asian Conference on Solid State Ionics (ACSSI-10) 12-16 June 2006, SRILANKA.
- "Development of a High Efficiency DNA based Biowhite Polymer LED". P.C.Mathur, P.K.Bhatnagar and **Sukhbinder Rait**. 11th Asian Conference on Solid State Ionics (ACSSI-11) 9-13 June 2008, Coimbatore, INDIA.
- Presentation delivered on "Characterization Of LED, OLED Devices And LED Lighting Solutions Using Thermal And Optical Systems (TOCS)" for Labsphere Inc. USA at ICWNCN March 13-16, 2012, University of Delhi, New Delhi, INDIA
- INSCR International Conference (IIC-2017) "Green Energy Based Portable Embedded System Solutions For Remote Area Applications" University of Delhi, Delhi, 26-28 September 2017.

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WORKSHOPS

- Course in “Advances in Photovoltaics” at XIIIth International Workshop on The Physics of Semiconductor Devices (IWPSD) December 2005, National Physical Laboratory, New Delhi, INDIA.
- IEEE Sustainability Conference 2009, Computer Society Chapter, IEEE Delhi Section, held at HMR Institute of Technology and Management, New Delhi, INDIA
- Workshop on “Scilab and its Applications”. March 2011, Acharya Narendra Dev College, University of Delhi, New Delhi, INDIA.
- “Science Academies Lecture Workshop On Frontiers in Science & Engineering” February 17-18, 2012 at SP Jain Centre, University of Delhi South Campus, New Delhi, INDIA.
- Resource Person at INSPIRE Internship Program 2012, Hansraj College, University of Delhi, INDIA
- National Workshop on “VLSI Design using VERILOG coding” July 16-18 2013, Bhaskaracharya College of Applied Sciences, University of Delhi, New Delhi, INDIA
- E-Yantra workshop on “Introduction to Robotics” September 24,25 2013, Cluster Innovation Centre, University of Delhi, Delhi, INDIA
- Resource Person at workshop on “Functional Analysis and Troubleshooting of Electronics Devices for Biotechnology and Biomedical Applications” March 12-14 2014, Hansraj College, University of Delhi, Delhi, INDIA
- Resource Person at workshop on “Design and Development of Physics Kit for Higher Secondary Stage” June 23-27 June 2014, NCERT, New Delhi, INDIA
- Resource Person at workshop on “Fluorescence Studies of Organic Structures” September 26,27 2014, Hansraj College, University of Delhi, Delhi, INDIA
- Resource Person at workshop on “Physics for College students” January 12-15 2015, Maitrey College, University of Delhi, New Delhi, INDIA
- Resource Person at workshop on “Design and Development of Physics Kit for Higher Secondary Stage” January 27-31 2015, NCERT, New Delhi, INDIA
- Organized and served as Resource Person in Integrating ICT in Teaching and Learning workshop sponsored by Department of Biotechnology, Ministry of Science and Technology at Hansraj College, Univ. of Delhi on 11-18 December, 2015.
- Convened and served as Resource Person in Workshop on Embedded Systems sponsored by Department of Biotechnology, Ministry of Science and Technology at Hansraj College, Univ. of Delhi on 15-16 January, 2016.
- Presented research work on “Emergency Management Solutions: Design of Solar based Eco-Friendly, Efficient, and Portable Lighting/Power, Water Conditioning and Thermo-electric Solutions” as poster at the 94th Foundation day of University of Delhi on 1st May 2016.
- Workshop on Characterization of Materials by X Ray Diffraction sponsored by Department of Biotechnology, Ministry of Science and Technology at Hansraj College, Univ. of Delhi on 23-24 February 2016.
- Faculty Development Programme of Research Project management, Proposal to Publication and Beyond, CIC - Centre for Science Education and Communication, University of Delhi. 19 July 2016.
- Faculty Development Programme on Embedded Systems & Synthesis of Nano Materials, Star College Scheme, DBT, Ministry of Science and Technology. Hansraj College 6-7 January 2017.
- Faculty Development Programme on Digital Literacy: An Introduction to ICT skills. Star College Scheme, DBT, Ministry of Science and Technology. Hansraj College 15-17 September 2017.
- Workshop on Biologically Inspired Learning: Neural Networks and Artificial Intelligence. Star College Scheme, DBT, Ministry of Science and Technology. Hansraj College 27 September 2017

PROJECTS

- Project Investigator in Innovation Project 2013-2014 HR-206, “Development of an Eco-Friendly, Efficient, Portable Lighting Source Utilizing a Renewable Energy Source and a Solid State Lighting Solution – Solar LED Bulb”, Hansraj College, University of Delhi, Delhi, INDIA
- Project Investigator in Innovation Project 2015-2016 HRC310 “Emergency Management Solutions: Design of Solar based Eco-Friendly, Efficient, and Portable Lighting/Power, Water Conditioning and Thermo-electric Solutions” Hansraj College, University of Delhi, Delhi, INDIA
- Project Investigator in DBT Star College sponsored Project 2017 “Design of A Standalone Sound System With Wireless Integration”.
- Project Investigator in DBT Star College sponsored Project 2017 “White Noise Based Filter Analysis for Use in Audio System”.

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- Project Investigator in DBT Star College sponsored Project 2017 “Conversion of conventional lighting sources (mercury vapor lamps, sodium vapor lamps, incandescent lamps) used in laboratory to solid state lighting sources (LED based, LASER based)”.

PERSONAL DETAILS

- Date of Birth: 26th Nov '78.
- Languages: English, Hindi & Punjabi.
- Other Interests: Building Electronic Circuits, Reading, Listening to Music.

(Sukhbinder Singh Rait)