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## Dr. Sudhanshu Pratap Singh

(M.Sc., Ph.D.) IIT Roorkee  
Department of Chemistry  
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### AWARDS/RECOGNITION

Research Associateship of CSIR, New Delhi in 2009 at National level.  
Senior Research Fellowship of CSIR, New Delhi in 2007 at National level.  
Junior Research Fellowship of CSIR, New Delhi in 2004.

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### ACADEMIC VOYAGE

Research Associate at I.I.T. Roorkee.  
Lecturer (ad hoc), SCBC, Thapar University, Punjab.  
Assistant Professor (Chemistry) at JSS Academy of Technical Education, Noida.  
Assistant Professor at Shoolini University, H.P.  
Assistant Professor at S.R.H.U., Uttarakhand.  
Assistant Professor at Invertis University, Uttar Pradesh.  
Assistant Professor at Maharaja Agrasen University, Baddi, Solan.

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### LIST OF PUBLICATIONS

(Total: Eleven in peer reviewed journals):

1. Goyal, Rajendra N.; Oyama, Munetaka; Sangal, Aditi; Singh, Sudhanshu P.. Differential pulse voltammetric determination of uric acid at nanogold modified indium tin oxide (ITO) electrode. Indian Journal of Chemistry, Section A: Inorganic, Bio-inorganic, Physical, Theoretical & Analytical Chemistry (2005), 44A(5), 945-949. (ISSN No.: 0376-4710, Publisher: NISCAIR, Impact factor: 0.628)  
Nanogold modified indium tin oxide electrode has been applied for the first time for electroanalytical purpose to quantify uric acid.
2. Goyal, Rajendra N.; Singh, Sudhanshu P.. Voltammetric determination of paracetamol at C<sub>60</sub>-modified glassy carbon electrode. Electrochimica Acta (2006), 51(15), 3008-3012. (ISSN No.: 0013-4686, Publisher: Elsevier, Impact factor: 4.803)  
Determination of the antipyretic drug paracetamol has been carried out at fullerene modified glassy carbon electrode.
3. Goyal, Rajendra N.; Singh, Sudhanshu P.. Voltammetric determination of atenolol at C<sub>60</sub>-modified glassy carbon electrodes. Talanta (2006), 69(4), 932-937. (ISSN No.: 0039-9140, Publisher: Elsevier, Impact factor: 4.035)

Fraction of the glassy carbon electrode surface covered by fullerene has been determined to check the efficacy of electrode modification procedure. Application of fullerene modified glassy carbon electrode for quantification of the drug atenolol was also described.

4. Goyal, Rajendra N.; Singh, Sudhanshu P.. Voltammetric quantification of adenine and guanine at C<sub>60</sub> modified glassy carbon electrodes. Journal of Nanoscience and Nanotechnology (2006), 6(12), 3699-3704. (ISSN No.: 1533-4880, Publisher: American Scientific Publisher, Impact factor: 1.338)

Simultaneous determination of the two important constituents of DNA viz., adenine and guanine has been described with emphasis on determining species specific guanine/adenine ratio in DNA.

5. Goyal, Rajendra N.; Oyama, Munetaka; Singh, Sudhanshu P.. Simultaneous determination of adenosine and adenosine-5'-triphosphate at nanogold modified indium tin oxide electrode by osteryoung square-wave voltammetry. Electroanalysis (2007), 19(5), 575-581. (ISSN No.: 1040-0397, Publisher: Wiley interscience, Impact factor: 2.471)

Gold nanoparticles modified indium tin oxide electrode has been used for the simultaneous determination of adenosine and adenosine triphosphate. Method was also applied to detect adenosine triphosphate in sprouted wheat grains and leaves.

6. Goyal, Rajendra N.; Oyama, Munetaka; Singh, Sudhanshu P.. Fast determination of salbutamol, abused by athletes for doping, in pharmaceuticals and human biological fluids by square wave voltammetry. Journal of Electroanalytical Chemistry (2007), 611(1-2), 140-148. (ISSN No.: 1572-6657, Publisher: Elsevier, Impact factor: 2.822)

This is one of the **best articles** in my personal opinion. In place of single oxidation peak, a pair of peak has been observed. One of the peaks was ascribed to salbutamol oxidation and the other peak was nicely described to be due to adsorption of product. The article has been accredited as top 25 hottest articles published in Journal of Electroanalytical Chemistry and is placed at 3rd position.

7. Goyal, Rajendra N.; Kaur, Davinder; Singh, Sudhanshu P.; Pandey, Ashish K.. Effect of graphite and metallic impurities of C<sub>60</sub> fullerene on determination of salbutamol in biological fluids. Talanta (2008), 75 (1), 63-69. (ISSN No.: 0039-9140, Publisher: Elsevier, Impact factor: 4.035)

Voltammetric quantification of salbutamol has been carried out at fullerene modified glassy carbon electrode and the method has been cross validated with GC- MS.

8. Goyal, Rajendra N.; Singh, Sudhanshu P.. Simultaneous voltammetric determination of dopamine and adenosine using a single walled carbon nanotube - modified glassy carbon electrode. Carbon (2008), 46 (12), 1556-1562. (ISSN No.: 0008-6223, Publisher: Elsevier, Impact factor: 6.198)

The article describes catalytic effect of metallic impurities of single walled carbon nanotubes on voltammetric behavior, and simultaneous determination of adenosine and dopamine at single walled carbon nanotube modified glassy carbon electrode.

9. Goyal, Rajendra N.; Oyama, Munetaka; Bachheti, Neeta; Singh, Sudhanshu P.. Fullerene C<sub>60</sub> modified gold electrode and nanogold modified indium tin oxide electrode for

prednisolone determination. Bioelectrochemistry (2009), 74 (02), 272-277. (ISSN No.: 1567-5394, Publisher: Elsevier, Impact factor: 3.556)

In this article, a comparison of the performances of fullerene modified gold electrode with gold nanoparticles modified indium tin oxide electrode has been described for the determination of prednisolone.

10. Goyal, Rajendra N.; Singh, Sudhanshu P.; Chatterjee, Sanghamitra; Bishnoi, Sunita. Electrochemical investigations of prednisone using fullerene-C<sub>60</sub>-modified edge plane pyrolytic graphite electrode. Indian Journal of Chemistry, Section A: Inorganic, Bio-inorganic, Physical, Theoretical & Analytical Chemistry (2010), 49A (1), 26-33.

**(ISSN No.: 0376-4710, Publisher: NISCAIR, Impact factor: 0.628)**

A comparison of the voltammetric response of purified, super-purified, and non-purified fullerene modified electrode has been demonstrated. Analytical application of fullerene modified edge plane pyrolytic graphite electrode has been also described.

11. Goyal, Rajendra N.; Chatterjee, Sanghamitra; Singh, Sudhanshu P.; Rana, Anoop Raj Singh; Chasta, Himanshu. The Electrocatalytic Activity of Bare Pyrolytic Graphite and Single Wall Carbon Nanotube Modified Glassy Carbon Sensors Is Same for the Quantification of Bisoprolol Fumarate. American Journal of Analytical Chemistry (2012), 3, 106-112. (ISSN No.: 2156-8251, Publisher: SCIRP, Impact factor: 0.370)

Carbon naotube modified glassy carbon exhibits sensitivity and detection limit close to that observed at bare basal plane pyrolytic graphite electrode. The method developed is applicable for determination of bisoprolol fumarate in pharmaceutical preparations and biological samples.

#### **Conferences/Seminars/Workshops/Short term courses:**

1. Participated in National Workshop on Techniques and Challenges for Structure Solution in Chemical Crystallography held on Aug 31 & Sep 1, 2007 in Department of Chemistry, IIT Roorkee.
2. Participated in the short term course on Electron Microscopy and their Usage for Nanotechnology Related Research Work held during October 3 - 10, 2007 organized by Centre of Nanotechnology, IIT Roorkee in association with Institute Instrumentation Centre, IIT Roorkee.
3. Participated in IVth Uttarakhand State Science and Technology Congress (USSTC) held at Govind Ballabh Pant University of Agriculture and Technology, Pantnagar (Uttarakhand) during November 10-12, 2009, and presented the paper entitled "Effect of metallic impurities of single walled carbon nanotubes on electrocatalysis during simultaneous voltammetric determination of dopamine and adenosine"; pp. 180.
4. Participated in International Conference on Chemistry: Frontiers and Challenges held at Aligarh Muslim University, Aligarh (U.P.) during March 05-06, 2011, and presented the paper entitled "Effect of adsorption on voltammetric determination of salbutamol at gold nanoparticles modified ITO electrode"; pp. 61.

## **PROJECTS**

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**Solution Study of Some Metal Complexes with Adenosine** under supervision of Dr. U.P. Singh (Professor, Chemistry Deptt., IIT Roorkee) during January 2003 – April 2003.

## Ph.D. DISSERTATION INFORMATION

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**Name of Guide:** Prof. Rajendra Nath Goyal

**Topic of Dissertation:** Determination of Biomolecules/ Drugs at Nanomaterial Modified Electrodes.

**Date of Thesis submission:** August 14, 2008.

**Date of viva voce:** October 20, 2008.

## SKILLS

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**Computer Languages:** C

**Software Packages:** Microsoft Office(Including Word, Excel etc.), ISIS Draw, Chem Draw, Photoeditors, Adobe acrobat, Adobe photoshop.

**Additional Courses Taken:** Electroanalytical Chemistry, Biochemistry, Immunology and Immunotechnology, Seminars on Nanoscience related topics.

**Other Skills/Achievements:** Qualified Joint CSIR-UGC NET June 2003

## PERSONAL PROFILE

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**Date of Birth:** 17-04 -1979

**Blood Group:** B+

**PAN No.:** BREPS8337L

**Category:** General

**Gender:** Male

**Marital Status:** Married

**Nationality:** Indian

**Father's Name:** Late Dr. S.K. Singh

**Mother's Name:** Smt. Lajja Singh

**Correspondence Address:** Sudhanshu P. Singh

Department of Chemistry

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## ACADEMIC QUALIFICATIONS

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Qualified Joint CSIR-UGC NET June 2003

Qualification	Year	Passed with Division	Board/University/Institute	Major field of Study
Ph.D.	2008	NA	I.I.T. Roorkee	Electroanalytical chemistry
N.E.T.	2003	NA	C.S.I.R.-U.G.C.	Chemical Sciences
M.Sc.	2003	I st	I.I.T. Roorkee	Chemistry
B.Sc.	2001	II nd	M.J.P. Rohilkhand University, Bareilly.	Chemistry, Botany
A.I.S.S.C. E.- 97	1997	I st	C.B.S.E.	Chemistry, Biology, Physics
A.I.S.S.E.- 95	1995	I st	C.B.S.E.	Mathematics, Science