



ENLIGHTENMENT TO EXCELLENCE

## UNIVERSITY OF NORTH BENGAL

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Raja Rammohunpur, Dist- Darjeeling, West Bengal, Pin-734013, India.

## Department of Physics

Print



## Suman Chatterjee

Ph.D. (Engg.)

Associate Professor

**Contact Addresses:**

**Phone** +91- 94340 54446

**Mailing Address** Department of Physics, University of North Bengal, P.O.- NBU, Dist- Darjeeling, West Bengal, Pin -734013, India.

**e-Mail** [suman\\_chatterjee@hotmail.com](mailto:suman_chatterjee@hotmail.com)

**Subject specialization:** Materials Technology, Instrumentation.**Areas of Research Interest:** Solid State Devices**No. of Ph.D. students:** (a) Supervised: 01 (b) Ongoing: 02 .**No. of M.Phil. students:** (a) Supervised: 01 (b) Ongoing: Nil .**No. of Publications:** (a) Journal(s) : 30 (b) Book(s) : 02 (c) Book chapter(s): 09**Achievement & Awards:**

S. No.	Name of Award	Awarding Agency	Year
1.	All India Graduate Aptitude Test in Engineering (GATE) Scholarship awarded for M.Tech studies	Graduate Aptitude Test in Engineering (GATE)	1988
2.	BHU Gold Medal awarded for standing first in M.Tech. Examination	Benaras Hindu University & Jawaharlal Nehru Foundation, New Delhi	1990
3.	Research scholarship awarded for carrying out Ph.D. work through National Entrance Test (NET)	Council of Scientific and Industrial Research (CSIR), Government of India	1992

**Professional experiences:**

S. No.	Positions Held	Name of Institute	From	To
1.	Research Engineer	Tea Research Association, and CEERI, Pilani	Oct.1992	Jul.1999
2.	Research Associate	Electroceramics Divn. CGCRI, Jadavpur	Jul.1999	May.2001
3.	Pos-Dotorado	IQ, UNESP, Araraquara, Sao-Paulo, Brazil	May.2001	Feb.2002
4.	Research Associate	Queens University, Kingston, Canada	Feb.2002	Nov.2002
5.	Post-doc. Associate	University of Florida, Gainesville, USA	Nov.2002	Mar.2005
6.	Assistant Professor	North Bengal University, WB-734013, India	Sep.2005	Present

**Brief Description of Post Doctoral Work):**

- Developed Moisture meter using ceramic sensors, including fabricating, characterizing and optimizing for applications for trace moisture analysis.
- Developed ceramic sensors for gas and moisture.
- Designed and developed solid oxide fuel cells.
- Study of grain boundary phenomena in electroceramic materials.
- Engineering of grain boundary with a special technique of dopant diffusion through vapor phase.
- Research and development on Barium Titanate based X7R dielectric for single layer capacitor.
- Fabrication of Intermediate Temp. Solid Oxide Fuel Cells planar stacks.
- Fabrication and characterization of gas sensing device operating at lower temperature based on proton conducting materials.
- Fabrication and characterization of gas sensing device.
- Fabrication of Intermediate Temperature Solid Oxide Fuel Cells.
- Hydrogen gas separation membranes.

**List of Patents:**

S. No.	Patent Title	Name of Applicant	Patent No.	Award Date	Award Agency	Status

1.	<i>An improved vacuum gauge using PTC thermistor</i>	Kamalendu Sengupta, Suman Chatterjee, & Himadri Shekhar Maiti	972/DEL/92	26.10.92	Indian Patent, New Delhi	Granted
2.	<i>A Fluid flow meter</i>	Kamalendu Sengupta, Suman Chatterjee, & Himadri Shekhar Maiti	329/DEL/99	25.2.99	Indian Patent, New Delhi	Granted
3.	<i>A process of making lanthanum and manganese doped PTC thermistor material</i>	Suman Chatterjee, Kamalendu Sengupta and Himadri Shekhar Maiti	NF 145/2001		Indian Patent, New Delhi	Filed
4.	<i>A novel sensor useful for the determination of moisture in agricultural produce and a moisture sensing device made thereof</i>	Suman Chatterjee, Santanu Basu, Debdas Chattopadhyay, Kalyan Mistry and Kamalendu Sengupta	NF 144/2001		Indian Patent, New Delhi	Filed
5.	<i>A novel moisture sensor and a device for measuring moisture made thereof</i>	Santanu Basu, Suman Chatterjee, Kalyan Mistry and Kamalendu Sengupta	NF 236/2001.		Indian Patent, New Delhi	Filed

### Selective List of Publications:

S. No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1.	Kalyan Kr. Mistry, Santanu Basu, Suman Chatterjee, Manjushree Saha, Debdas Chattopadhyaya and Kamalendu Sengupta.	Sensitivity and Selectivity of Porous Tape Cast Material for Gas Moisture Sensing"	<i>Journal Porous Media</i>	6 (4)	267-272	2003
2.	Suman Chatterjee, Biljana Stojanovic and H.S. Maiti	Effect of additives and powder preparation techniques on PTCR properties of Barium Titanate	<i>Materials Chemistry and Physics</i>	78	702-710	2003
3.	Suman Chatterjee, G. Yu, A. Smovzh and V.D. Krstic	Effects of Sintering Temperature and Annealing in N <sub>2</sub> Atmosphere on Dielectric Properties of BaTiO <sub>3</sub> Based X7R Dielectric Materials	<i>Canadian Metallurgical Quarterly</i>	42 (2)	141-148	2003
4.	Jun Young Park, Suman Chatterjee and Eric D. Wachsman	Low ppm detection of CO through novel sensor design	<i>Ionics</i>	12 (1)	15-20	2006.
5.	Jun Young Park, Suman Chatterjee, Jiho Woo and Eric D. Wachsman	Selectivity and sensitivity of CO gas sensing element	<i>Journal of the Electrochemical Society</i>	153 (A)	2232-2238	2006
6.	Frederick M. Van Assche, Jiho Yoo, Suman Chatterjee, and E. D. Wachsman	Heterogeneous Catalytic Evaluation of Potentiometric La <sub>2</sub> CuO <sub>4</sub> Sensor Electrodes	<i>Electrochemical Society Transactions</i>	1 (7)	185	2006
7.	J. Yoo, S. Chatterjee, and E. D. Wachsman	Sensing Properties and Selectivities of a WO <sub>3</sub> /YSZ/Pt Potentiometric NO <sub>x</sub> Sensor	<i>Sensors &amp; Actuators B</i>	122 (2)	644-652	2007
8.	Briggs White, Suman Chatterjee, Eric Macam and Eric D. Wachsman	Effect of Electrode Micro-structure on NO sensitivity	<i>Journal of American Ceramic Society</i>	91 (6)	2024-2031	2008
9.	Indra Bahadur Karki, Suman Chatterjee and P.K. Mandal	Nanostructured Sensing Material for Detection of Volatile Organic Compounds	Lucknow Journal of Science	8 (1)	521- 524	2011
10.	I.B. Karki, J.J. Nakarmi, P.K. Mandal and S. Chatterjee	Absorption Spectra of Natural Dyes and Their Effect on Efficiency of ZnO Based Dye-Sensitized Solar Cells	Nepal Journal of Science and Technology	13 (1)	179-185	2012
11.	Karki Indra Bahadur, Nakarmi Jeevan Jyoti1, Mandal Pradip Kumar and Chatterjee Suman	Dye Sensitized Solar cell using extract of Punica Granatum L.Pomegranate (Bedana) as a Natural Sensitizer,	Research Journal of Chemical Sciences (ISSN 2231-606X),	2 (12)	81-83	2012
12.	I. B. Karki, J. J. Nakarmi, P. K. Mandal, and S. Chatterjee	Effect of Organic Dyes on the Performance of ZnO Based Dye Sensitized Solar Cells	Applied Solar Energy (ISSN 0003-701X)	49 (1)	40-45	2013
13.	P. Biswas, N. Kumar, M. Singh, I.B. Karki, S. Chatterjee	Correlation of tasters scores with biochemical and electronic sensor data for Darjeeling orthodox black tea	Sixth International Conference on Sensing Technology	(DOI: 10.1109/ICSensT.6461781)	769-774	2012
14.	Suman Chatterjee, I.B. Karki, P. Biswas, A. Basu Majumder, N.Kumar, M.Singh, & B.Bera	Zinc Oxide Nanorod Sensing Element For Detection Of Tea Aroma	Sixth International Conference on Sensing Technology	(DOI: 10.1109/ICSensT.2012.6461743)	567-570	2012