




## University Faculty Details Page on DU Web-site

Title	Dr.	First Name	SAFIR AHMAD	Last Name	HASHMI	Photograph
Designation	Professor					
Department	Physics & Astrophysics					
Address (Campus)	Department of Physics & Astrophysics, University of Delhi, Delhi-110007					
	(Residence)	7/3 (Second Floor), University Road, University of Delhi, Delhi-110007				
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Web-Page						
Education						
Subject	Institution		Year	Details		
Ph.D.	Banaras Hindu University, Varanasi		1988	Thesis topic: Proton Transport in Ammonium Para Tungstate Pentahydrate and Ammonium Dihydrogen Phosphate		
M.Sc.	Allahabad University		1981	Subjects: Physics (Spl. Electronics)		
B.Sc.	Allahabad University		1979	Subjects: Physics, Chemistry Mathematics		
Career Profile						
Organisation / Institution		Designation	Duration	Role		
Banaras Hindu University		Research Associate	1991-1993	Teaching & Research		
HNB University, Garhwal		Lecturer	Sept. 1993 (one month)	Teaching & Research		
North Eastern Regional Institute of Science & Technology (NERIST), Itanagar		Lecturer / Sr. Lecturer	October 1993 – Jan. 28, 2005	Teaching & Research		
University of Delhi		Reader	Jan. 31, 2005 – Jan.30, 2008	Teaching & Research		
University of Delhi		Associate Professor	Jan. 31, 2008 – Jan.30, 2011	Teaching & Research		
University of Delhi		Professor	--	Teaching & Research		
Research Interests / Specialization						
<p><b>Electroactive polymers for Batteries and Supercapacitors. Current interest is devoted towards the :</b></p> <ul style="list-style-type: none"> <li>• Development of magnesium and sodium rechargeable batteries using gel polymer electrolytes,</li> <li>• Development of supercapacitors based on carbon and conducting polymer electrodes, and gel polymer electrolytes, and</li> <li>• Development of thermally and electrochemically stable polymer electrolytes for their application</li> </ul>						

in energy storage devices.

Teaching Experience ( Subjects/Courses Taught)

2005-present: Electronics (Core paper, M.Sc. (Previous))  
 Electronics (Special paper-I, M.Sc.(Final))  
 Electronics Experimental Lab (M.Sc. Previous)  
 Electronics Experimental Lab (M.Sc. Final)  
 Nuclear Physics Experimental Lab (M.Sc. Previous)  
 Basic Electronics (Core paper, M.Tech, Nanoscience & Nanotechnology)  
 Physics Experimental Lab. (M.Tech, Nanoscience & Nanotechnology)  
 Atomic & Molecular Physics (Core paper, M.Sc. (Previous))

Honors & Awards

Member, Expert Committee for project evaluation of Young Scientists, Physical & Mathematical Sciences, SERB (DST), New Delhi.

Publications (LAST FIVE YEARS)

Books / Monographs

<u>Year of Publication</u>	<u>Title</u>	<u>Publisher</u>	<u>Co-Author</u>
2012	<b>Electroactive Polymers: Materials &amp; Devices, Volume-IV</b> ( <i>Proceedings of "Fourth International Conference on Electroactive Polymers" held at Surajkund, during November 21-26, 2010</i> )	Macmillan Publishers	R.K Singh, Amita Chandra and Amreesh Chandra
2015	<b>Electroactive Polymers: Materials &amp; Devices, Volume-V</b> ( <i>Proceedings of "Fifth International Conference on Electroactive Polymers" held at BHU, Varanasi during November 04-09, 2012</i> )	Allied Publishers	R.K Singh, Amita Chandra and Amreesh Chandra

In Indexed/ Peer Reviewed Journals

<u>Year of Publication</u>	<u>Title</u>	<u>Journal</u>	<u>Co-Author</u>
2012	Gel Polymer Electrolyte Based Electrical Double Layer Capacitors:Comparative Study with Multiwalled Carbon Nanotubes and Activated Carbon Electrodes	J. Phys. Chem. C, 116, 26118–26127	Yogesh Kumar, G. P. Pandey
2012	Nanocomposite blend gel polymer electrolyte for proton battery application	J Solid State Electrochem, 17:785–793	Kuldeep Mishra, D. K. Rai
2013	Ionic liquid 1-ethyl-3-methylimidazolium tetracyano-borate based gel polymer electrolyte for electrochemical capacitors	J. Mater. Chem. A, 1, 3372	G. P. Pandey
2013	Preparation of highly porous binderless activated carbon electrodes from fibres of oil palm empty fruit bunches for application in supercapacitors	Bioresource Technology 132, 254–261	R. Farma, M. Deraman, A. Awitdrus, I.A. Talib, E. Taer, N.H. Basri, J.G. Manjunatha, M.M. Ishak, B.N.M. Dollah

2013	High-Rate Performance of Flexible Pseudocapacitors fabricated using Ionic-Liquid Based Proton Conducting Polymer Electrolyte with Poly (3,4-ethylenedioxythiophene):Poly (styrene sulfonate) and Its Hydrous Ruthenium Oxide Composite Electrodes	ACS Appl. Mater. Interfaces, 5, 3875–3883	Sellam
2013	Magnesium ion transport in poly (ethylene oxide)-based polymer electrolyte incorporated with plastic crystalline succinonitrile	J. Solid St. Electrochem., 17, 2283–2291	Jyoti Sharma
2013	Investigations on Poly(ethylene oxide) + NH <sub>4</sub> PF <sub>6</sub> solid polymer electrolyte system	Int. J. Polym. Mater. and Polym. Biomater. 62, 663–670	Kuldeep Mishra, D. K. Rai
2013	Performance of solid state supercapacitors with ionic liquid 1-ethyl-3-methyl-imidazolium tris(pentafluoro-ethyl) trifluorophosphate based gel polymer electrolyte and modified MWCNT electrodes	Electrochim. Acta, 105, 333–341	G. P. Pandey
2013	Structural and electrochemical properties of succinonitrile based gel polymer electrolytes: Role of ionic liquid addition	J. Phys. Chem. B, 117, 7436-7443	Mohd. Suleman, Yogesh Kumar
2013	Solid-state supercapacitors with ionic liquid based gel polymer electrolyte: Effect of lithium salt addition	J. Power Sources, 243, 211-218	G. P. Pandey
2013	Studies on electrical double layer capacitor with a low-viscosity ionic liquid 1-ethyl-3-methylimidazolium tetra-cyanoborate as electrolyte	Bull. Mater. Sci., 36, 729–733.	G. P. Pandey
2013	‘Bucky gel’ of multi-walled carbon nanotubes as electrodes for high performance, flexible electric double layer capacitors	Nanotechnology, 24, 465704 (10pp)	Manoj K Singh, Yogesh Kumar
2013	Quasi-solid-state pseudocapacitors using proton-conducting gel polymer electrolyte and poly(3-methyl thiophene)–ruthenium oxide composite electrodes	J Solid State Electrochem 18, 465–475	Sellam
2014	Protic ionic liquid-based gel polymer electrolyte: structural and ion transport studies and its application in proton battery	J Solid State Electrochem, 18, 2255-2266	Kuldeep Mishra, D. K. Rai
2014	Studies on a proton battery using gel polymer electrolyte	High Performance Polymers, 26, 672–676	Kuldeep Mishra, D. K. Rai
2014	A novel configuration of electrical double layer capacitor with plastic crystal based gel polymer electrolyte and graphene nano-platelets as electrodes: A high rate performance	Energy, 80, 465-473	Manoj K. Singh, Mohd. Suleman, Yogesh Kumar

2015	Flexible electric double-layer capacitors fabricated with micro-/mesoporous carbon electrodes and plastic crystal incorporated gel polymer electrolytes	J Solid State Electrochem., 19 1347–1357.	Mohd. Suleman, Yogesh Kumar
2015	Synthesis of surfactant free SnS nanorods by solvo-thermal route with better electrochemical properties towards supercapacitor application	RSC Adv. 5, 17228.	Himani Chauhan, Manoj K Singh, Sasanka, Dekka
2015	Solid-state electric double layer capacitors fabricated with plastic crystal based flexible gel polymer electrolytes: Effective role of electrolyte anions	Materials Chemistry and Physics, 163 (2015) 161-171	Mohd. Suleman, Yogesh Kumar
2015	High-rate supercapacitive performance of GO/r-GO electrodes interfaced with plastic- crystal-based flexible gel polymer electrolyte	Electrochim. Acta, 182 (2015) 995–1007	Mohd. Suleman, Yogesh Kumar
2016	Ionic liquid based sodium ion-conducting composite gel polymer electrolytes: Effect of active and passive fillers	J. Solid State Electrochem., DOI: 10.1007/s10008-016-3284-6	Mohd. Yasir Bhat, Manoj K. Singh, N.T. Kalyana Sundaram, Bala P. C. Raghupathy, Hideaki Tanaka
2016	Surfactant assisted polyaniline nanofibres—Reduced graphene oxide (SPG) composite as electrode material for supercapacitors with high rate performance	Electrochimica Acta 222 (2016) 570–579	Deepika Jain, Amarjeet Kaur
2017	Development of SnS <sub>2</sub> /RGO nanosheet composite for cost-effective aqueous hybrid supercapacitors	Nanotechnology 28 (2017) 025401 (11pp)	Himani Chauhan, Manoj K Singh, Praveen Kumar, Sasanka Dekka
2017	Optimization of porous polymer electrolyte for quasi-solid-state electrical double layer supercapacitor	Electrochimica Acta 235 (2017) 570–582	Nitish Yadav, Kuldeep Mishra
2017	Performance of solid-state hybrid supercapacitor with LiFePO <sub>4</sub> /AC composite cathode and Li <sub>4</sub> Ti <sub>5</sub> O <sub>12</sub> as anode	Ionics DOI:10.1007/s11581-017-2027-8	Manoj K. Singh
2017	Activated graphene oxide/reduced graphene oxide electrodes and low viscous sulfonium cation based ionic liquid incorporated flexible gel polymer electrolyte for high rate supercapacitors	J. Alloys and Compds. 695 (2017) 3376-3392	Mohd. Suleman, M.A.R. Othman, S.A. Hashmi, Yogesh Kumar, Mohd. Deraman, R. Omar, M.R.M. Jasni

Articles

Nil

Conference Presentations (Last Five Years)

- **ELECTROCHEMICAL PSEUDOCAPACITORS: TOWARDS SOLID STATE TYPE CONFIGURATION WITH POLYMER BASED ELECTROLYTES**, Invited talk in the “Fifth International Conference on Electroactive Polymers: Materials and Applications-ICEP-2012”, held at BHU, Varanasi, India during 4-9 Nov., 2012.
- **“Characteristics of conducting polymers for their supercapacitive performance” and Electrical double layer supercapacitors: Recent developments**, Invited talks in “Workshop on advanced energy storage: Materials and Devices, held at Pusat Marin, Universiti Pertahanan Nasional Malaysia, Kuala Lumpur, 4-5 July, 2013.
- **Solid-state, flexible electric double layer capacitors: Role of electrolytes**, Invited talk in the 10<sup>th</sup> National Conference on Solid State Ionics (NCSSI-10), held at Department of Physics and Meteorology, IIT, Kharagpur, 22-24 December, 2013
- **Gel polymer electrolytes for flexible electric double layer supercapacitors: Role of electrolyte ions**, Invited talk in “International Conference Science and Engineering of Materials (ICSEM-2014), held at Sharda University, Greater Noida, India during 6-8 Jan., 2014.
- **Solid-state electric double layer supercapacitors based on plastic-crystal-incorporated lithium-ion-conducting gel polymer electrolytes**, Poster Presentation in “XIV International Symposium on Polymer Electrolyte (ISPE 14)” held at Deakin University, Geelong, Australia during Aug. 24-29, 2014.
- **Solid-State Supercapacitors based on GO/r-GO Electrodes and Plastic-Crystal-incorporated Flexible Gel Polymer Electrolytes**, Invited Talk in “JAIST Japan-India Symposium on Materials Science 2015” held at JAIST, Ishikawa, Japan, Mar. 2-3, 2015.
- **High Rate Supercapacitors with Graphene-based Electrodes and Succinonitrile-incorporated Gel Polymer Electrolytes**, Invited talk in “Eleventh National Conference on Solid State Ionics (NCSSI-11)” held at Tezpur University, Assam, Dec. 21-23, 2015.
- **Solid-State Electrical Double Layer Supercapacitors: Role of Electrolyte Ions and Porosity of Carbon Electrodes**, Keynote Address “15<sup>th</sup> Asian Conference on Solid State Ionics” held on NOVEMBER 27-30, 2016 at IIT, Patna, India.
- **Recent Development on Solid State Electrical Double Layer Capacitors with Polymer-Based Electrolytes**, Invited talk in “6th International Conference on Functional Electroceramics and Polymers (ICEP-2017)” held during February 20 -22, 2017 at IIT Kharagpur-721302, India

Total Publication Profile optional

Books

**2 Edited books (In last five years)**

In Indexed/ Peer Reviewed Journals

**24 publications in Refereed Journals (In last five years)**

Articles

**Nil**

Conference Presentations (In last five years)

**Nine conference presentations**

Public Service / University Service / Consulting Activity

**Not Applicable**

Professional Societies Memberships

1. Indian Solid State Ionics Society
2. Indian Science Congress Association (Life Member)
3. National Academy of Science India (MNASC), Allahabad

Projects (Major Grants / Collaborations)

1. Development of Electrochemical Hybrid Supercapacitors based on Conducting Polymer Electrodes and Polymer Electrolytes for Energy Storage	DST	Three years (From April, 2011 – 31 <sup>st</sup> March 2014)	Rs. 36,45,000/=	Completed
2. Development of Thermally and Electrochemically Stable Gel Polymer Electrolyte for Sodium Ion Batteries	M/S Renault Nissan Technology, Japan	One year, 2013-14	Rs. 15,60,000/=	Completed
3. Development of Flexible-Solid-State Capacitors based on Sodium Ion Conducting Gel Polymer Electrolytes	SERB (DST)	Three Years (From March 2017 to March 2020)	Rs. 57,95,002/=	Ongoing

Other Details

**Conference Organisation:**

- Co-Chairperson of the “Fifth International Conference on Electroactive Polymers: Materials and Applications- ICEP-2012”, held at BHU, Varanasi, India during 4-9 Nov., 2012.

**Visits Abroad (In last five years):**

- Padova, Italy to attend the “XII International Symposium on Polymer Electrolytes (ISPE-12), held on 29 August – 3 September 2010.
- Yamaguchi University, Ube, Japan, during June 2012 (One month) under INSA-JSPS bilateral exchange programme of scientists.
- Universiti Teknologi Mara (UITM), Shah Alam, Malaysia, 30<sup>th</sup> June to 7<sup>th</sup> July, 2013, Research visit.
- Deakin University, Geelong, Australia to attend “XIV International Symposium on Polymer Electrolyte (ISPE 14)” held on Aug. 24-29, 2014.
- JAIST, Ishikawa, Japan to attend “JAIST Japan-India Symposium on Materials Science 2015” held on Mar. 2-3, 2015.
- Department of Physics, University of Malaya, Malaysia, 05.12.2014 to 21.12.2015. Research Visit