

## Personal:

Date of Birth: April 20, 1971

Marital Status: Married with 1 son

## Publication List: Published/Accept (Total 200)

**In International Refereed Journal (190)**

**In International Conference Proceeding (03)**

**Book Chapters (07)**

### Publication in International Refereed Journals

#### Year 2002

1. Nanocrystalline ZnS dispersed in polymer electrolyte (PEO:NH<sub>4</sub>I): Preparation and Electrical Conductivity Measurements.  
**P. K. Singh**, Rana Pratap and Amreesh Chandra  
**Prog. Crystal Growth & Charact. of Mat.** 44 (2002) 175-182. (*SCI, Impact Factor 3.147*)
2. Polymer Electrolyte Composites with dispersed Semiconductors.  
**P. K. Singh**, S. Chandra and A. Chandra  
**J. Mat. Sci. Letters** 21 (2002) 1393-1395. (*SCI, Impact Factor 2.993*) On 2004 -1- 1 this journal was merged into Journal of Materials Science
3. Semiconductor-dispersed polymer electrolyte composites.  
A. Chandra, **P. K. Singh** and S. Chandra  
**Solid State Ionics** 154-155 (2002) 15-20. (*SCI, Impact Factor 2.886*)
4. Ion conducting polymer electrolyte composites dispersed with ferroelectric Ba<sub>0.70</sub>Sr<sub>0.30</sub>TiO<sub>3</sub> ceramic powder.  
**P. K. Singh**, and A. Chandra  
Natl Acad Sci Lett 25 (2002) 286-293. (*SCI, Imp.. Factor 0.331*)

#### Year 2003

5. Role of the dielectric constant of ferroelectric ceramic in enhancing the ionic conductivity of polymer electrolyte composite.  
**Pramod Kumar Singh** and A. Chandra  
**J. Phys. D: Appl. Phys.** 36 (2003) L93-L96. (*SCI, Impact Factor 2.829*)

#### Year 2006

6. Thermal and Electrical Transport in ionic conductors : A correlation  
S.Chandra, S.B.Rai, **Pramod K. Singh** , K.Kumar, A.Chandra  
**Solid State Ionics** 177 (2006) 1613-1617. (*SCI, Impact Factor 2.886* )
7. On the correlation between thermal diffusivity and electrical conductivity in ionic conductors.  
S.Chandra, S. B. Rai, **Pramod K. Singh**, Kaushal Kumar and A. Chandra  
**J. Phys.D:Appl. Phys.** 39 (2006) 3680-3683. (*SCI, Impact Factor 2.829*)
8. Ionic noise measurement in polymer electrolytes.  
A. Chandra, D.P. Singh, **P.K. Singh**, N. Khare and S.Chandra  
**Ionics** 12 (2006) 349-352. (*SCI, Impact Factor 2.289*)
9. Polymer Electrolyte with Ionic Liquid for DSSC Application.  
**Pramod K. Singh**, K.I. Kim, J.W. Lee and H.-W. Rhee  
**Phys. Stat. Sol.A**, 203 (2006) R88-R90. (*SCI, Impact Factor 1.77*)

#### Year 2007

10. Dye Sensitized Solar Cell using Polymer Electrolytes based on Poly(ethylene oxide) with an Ionic Liquid.  
**Pramod K. Singh**, K.I. Kim, N.G. Park and H.-W. Rhee  
**Macromolecular Symposia**, 249-250 (2007) 162-166.

#### Year 2008

11. Mesoporous nanocrystalline TiO<sub>2</sub> electrode with ionic liquid based solid polymer electrolyte for dye sensitized solar cell application.

**Pramod K. Singh, K.W. Kim, N.G. Park and H.-W. Rhee**  
**Synthetic Metals**, 158 (2008) 590-593. (*SCI, Impact Factor 2.870* )

12. Nanocrystalline porous TiO<sub>2</sub> electrode with ionic liquid impregnated solid polymer electrolyte for Dye sensitized solar cells.

**Pramod K. Singh, K.W. Kim, K.I. Kim, N.G. Park and H.-W. Rhee**  
**J Nanosci Nanotechnol.** 8 (2008) 5271-4. (*SCI, Impact Factor 1.093* )

13. Electrical, optical and photoelectrochemical studies on a PEO-polymer electrolyte doped with low viscosity ionic liquid.

**Pramod K. Singh, K.W. Kim and H.-W. Rhee**  
**Electrochemistry Communications** 10 (2008) 1769-1772 (*SCI, Impact Factor 4.197*)

#### Year 2009

14. Ionic liquid (1-methyl 3-propyl imidazolium iodide) with polymer electrolyte for DSSC application.

**Pramod K. Singh, K.W. Kim and H.-W. Rhee**  
**Polym. Eng. Sci.** 49 (2009) 862-865 (*SCI, Impact Factor 1.920*)

15. Preparation, characterization and application of ionic liquid doped solid polymer electrolyte membranes.

**Pramod K. Singh, Kang-Wook Kim, R. K. Nagarale and Hee-Woo Rhee**  
**J.Phys. D:Appl. Phys.** 42 (2009) 125101-125104 (*SCI, Impact Factor 2.829*)

16. Quantum dot doped solid polymer electrolyte for device application.

**Pramod K. Singh, Kang-Wook Kim and Hee-Woo Rhee**  
**Electrochemistry Communications** 11 (2009) 1247-1250 (*SCI, Impact Factor 4.197*)

17. Development and characterization of ionic liquid doped thin solid polymer electrolyte membranes for better efficiency.

**Pramod K. Singh, K.W. Kim and H.-W. Rhee**  
**Synthetic Metals** 159 (2009) 1538-1541 (*SCI, Impact Factor 2.870*)

#### Year 2010

18. Synthesis, characterization and application of biopolymer-ionic liquid composite material

**Pramod K. Singh, B. Bhattacharya, R. K. Nagarale, K.-W. Kim and H.-W Rhee**  
**Synthetic Metals** 160 (2010) 139-142. (*SCI, Impact Factor 2.870* )

19. Ternary semiconductor nanoparticles embedded in polymer matrix: preparation and characterization.

**Pramod K. Singh, S.K. Tomar, R.K. Nagarale and H.W. Rhee**  
**Journal of Thermoplastic Composite Materials** 23 (2010) 227-237. (*SCI, Imp.Fac. 1.343*)

20. Effect of sodium-mixed anion doping in PEO-based polymer electrolytes.

B. Bhattacharya, R. K. Nagarale and **Pramod K. Singh**  
**High Performance Polymers** 22 (2010) 498-512. (*SCI, Impact Factor 1.584* )

21. Ionic liquid doped Poly (N-methyl 4-vinylpyridine iodide) Solid Polymer Electrolyte for Dye sensitized solar cell.

**Pramod K. Singh, B. Bhattacharya, R. K. Nagarale, S P Pandey, K. W Kim and H.-W. Rhee**  
**Synthetic Metals** 160 (2010) 950-954. (*SCI, Impact Factor 2.870*)

22. Application of Ionic Liquid Doped Solid Polymer Electrolyte

**Pramod K. Singh, Nitin A Jadhav, S. K. Mishra, U. P. Singh and B. Bhattacharya**  
**Ionics** 16(2010) 645-648. (*SCI, Impact Factor 2.289*)

23. Effect of nano TiO<sub>2</sub> dispersion on PEO polymer electrolyte property

**Pramod K. Singh, B. Bhattacharya and R.K. Nagarale**  
**Journal of Applied Polymer Science** 118 (2010) 2976-2980. (*SCI, Impact Factor 2.188* )

24. Importance of ionic liquid doped solid polymer (PVPI) electrolyte

**Pramod K. Singh**  
**International Journal of Sustainable Energy** 30 (2010) 270

25. Progress in Ionic Organic-Inorganic Composite Membranes For Fuel Cell Applications (**Review Article**)

R. K. Nagarale, Woon-Sup Shin, **Pramod K. Singh**

**Polym. Chem., 1 (2010) 388-408. (SCI, Impact Factor 4.760)**

**Year 2011**

26. Plasticizer doped ionic liquid incorporated solid polymer electrolytes for photovoltaic application.  
**Pramod K. Singh**, B. Bhattacharya, R.M. Mehra and Hee-Woo Rhee  
**Current Applied Physics 11 (2011) 616 (SCI, Impact Factor 2.010)**
27. PEO-Based Polymer Electrolytes: A Novel Material for Dye sensitized solar cell  
**Pramod K. Singh**, S. K. Tomar and Bhaskar Bhattacharya  
**Invertis Journal of Science & Technology 1 (2011) 91-102**
28. Comparative Study of Nano CdS Prepared in Methanolic Solution and Polymer Electrolyte Matrix  
Pawan Kumar, **Pramod K. Singh** and Bhaskar Bhattacharya  
**Ionics 17 (2011) 721-725. (SCI, Impact Factor 2.289 )**
29. Synthesis and Electrochemical Study of Functional Ionic Polymer  
R. K. Nagarale, Bhaskar Bhattacharya, Nitin A. Jadhav and **Pramod K. Singh**  
**Macromol. Chem.Phys 212 (2011) 1751-1757 (SCI, Impact Factor 2.622)**
30. Present status of solid state photoelectrochemical solar cell and dye sensitized solar cell using PEO-based polymer electrolytes (**Review Article**)  
**Pramod K. Singh**, R. K. Nagarale, S. P. Pandey, H W Rhee and B. Bhattacharya  
**Advances in Natural Sciences: Nanoscience and Nanotechnology, 2 (2011) 023002-15**
31. PbS-Nanoparticles Embedded in Polymer Matrix: Preparation and Characterization  
**Pramod K. Singh**, S.K. Tomar, B. Bhattacharya  
**Nanoscience and Nanotechnology, 1 (2011) 36-39.**

**Year 2012**

32. Preparation, characterization and application of Nano CdS doped with Alum composite electrolyte  
**Pramod K. Singh**, Pawan Kumar, T. Seth, Hee-Woo Rhee and B. Bhattacharya  
**Journal of Physics and Chemistry of Solids 73 (2012) 1159–1163 (SCI, Imp. Factor 2.752)**
33. Porous nanocrystalline TiO<sub>2</sub> electrode and poly (N-methyl 4-vinylpyridine iodide) – ionic liquid solid polymer electrolyte for device application.  
B. Bhattacharya, S. K. Tomar, S. P. Pandey, R. K. Nagarale and **Pramod K. Singh**  
**Int. J. Nanotechnol, 9 (2012) 1030-1039. (SCI, Impact Factor 0.578)**

**Year 2013**

34. Detection of Banana bunchy top virus using impedance spectroscopy  
Shahana Majumder, B. Bhattacharya, **Pramod K Singh**, S. Johari  
**Sensor Letters, 11 (2013) 2055-2059 (SCI, Impact Factor 0.55 )**
35. Novel Biopolymer Gel Electrolyte for Dye-Sensitized Solar Cell Application  
Rahul Singh, N.A. Jadhav, S.Majmuder, B.Bhattacharya and **Pramod K. Singh**  
**Carbohydrate Polymers 91(2013) 682-685(SCI, Impact Factor 6.044)**
36. A New Composite Polymer Electrolyte for Electrochemical Applications  
Manjeet Singh, Vivek Kr. Singh, Karan Surana, B. Bhattacharya, **Pramod K. Singh** and Hee Woo Rhee  
**Journal of Industrial & Engineering Chemistry 19 (2013) 819-822 (SCI, Imp. Factor 4.841 )**
37. Effect of PMMA dispersion in Polyethylene oxide complexed with NH<sub>4</sub>ClO<sub>4</sub> polymer electrolyte  
**Pramod K. Singh** and B. Bhattacharya  
**Optoelectronics and Advanced Materials-Rapid Communications 7 (2013)157-160 (SCI, Impact Factor 0.452 )**
38. Synthesis, characterization and sensing application of a solid alum/flyash composite electrolyte  
Amit Sachdeva, Roja Singh, **Pramod K. Singh**, B. Bhattacharya  
**Materiali in tehnologije 47 (2013) 468-471 (SCI, Impact Factor 0.714)**
39. Structural, optical and electrical studies on Si-doped polymer electrolyte composite  
Amit Saxena, **Pramod K. Singh**, B. Bhattacharya  
**Materiali in tehnologije 47 (2013) 799-802 (SCI, Impact Factor 0.714 )**

40. Poly(vinyl alcohol) doped with Ammonium Iodide solid polymer electrolyte: Preparation, characterization and application  
Vivek K. Singh, A. Annu, Upasana Singh, Prabhakar Singh, Bhaskar Bhattacharya, **Pramod K. Singh**  
**Journal of Optoelectronics and Advanced Materials**, 9-10 (2013) 927-931 (*SCI, Impact Fact. 0.58*)
41. Electrostatic model of semiconductor model of semiconductor nano-particles trapped in polymer electrolytes.  
Divya Singh, Nitin A. Jadhav and **Pramod K. Singh** and Bhaskar Bhattacharya  
**Bulletin of Material Science** 36 (2013) 977-980 (*SCI, Imp. Fac. 1.246*)

#### **Year 2014**

42. Effect of variation of average pore size and specific surface area of ZnO Electrode (WE) on Efficiency of Dye sensitized Solar Cells  
N. A. Jadhav, **Pramod K. Singh**, Hee Woo Rhee, and B. Bhattacharya  
**Nanoscale Research Letters**, 9 (2014) 575-583. (*SCI, Impact Factor 3.44*)
43. Effect of Structure Texture and Morphology Modulation on Efficiency of Dye sensitized Solar Cells  
N. A. Jadhav, **Pramod K. Singh**, Hee Woo Rhee, S. P. Pandey and B. Bhattacharya  
**Int. J. Electrochem. Sci.**, 9 (2014) 5377- 5388. (*SCI, Impact Factor 1.284*)
44. Synthesis of Lead Sulphide Nanoparticles for Electrode Application of Dye Sensitized Solar Cells  
Roja Singh, S. K. Tomar, P. Shukla, S.P. Pandey and B. Bhattacharya, **Pramod K Singh**  
**Nanosci. Nanotechnol. Lett.** 6 (2014) 31-36 (*SCI, Impact Factor 2.917*)
45. New Biodegradable Polymer Electrolyte for Dye Sensitized Solar Cell  
Rahul Singh, B. Bhattacharya, Hee Woo Rhee, **Pramod K Singh**  
**Int. J. Electrochem. Sci.**, 9 (2014) 2620 - 2630 (*SCI, Impact Factor 1.284*)
46. Multiwall Carbon Nanotube Doped Ion Conducting Polymer Electrolyte for Electrochemical Application  
Hima Saxena, B. Bhattacharya, N. A. Jadhav, S. Shukla, M. Dubey, Vivek Kr. Singh, **Pramod K. Singh**  
**J. of Exp. Nanoscience**, 9 (2014) 444-451. (*SCI, Imp. Fac. 2.482*)
47. Electrochemical Synthesis of Graphene Oxide and Its Application as Counter Electrode in Dye sensitized solar cell  
**Journal of Renewable & Sustainable Energy Review**, 6 (2014) 013125-013133 (*SCI, Imp Factor 10.55*)  
Hee Woo Rhee, B. Bhattacharya, **Pramod K Singh** and Upasana Singh
48. Synthesis, Characterization and Application of CdSe quantum dots  
Karan Surana, **Pramod K Singh**, Hee Woo Rhee, B. Bhattacharya  
**Journal of Engineering & Industrial Chemistry**, 20 (2014) 4188-4193 (*SCI, Imp. Factor 4.97*)
49. Detail electrical investigation on Sago Starch biopolymer solid electrolyte  
Rahul Singh, Jaya Baghel, S. Shukla, B. Bhattacharya, and **Pramod K. Singh**  
**Phase Transitions**, 87 (2014) 1237-1245 (*SCI, Impact Factor 1.026*)
50. Structural and electrical studies of Fullerene (C60) dispersed polymer electrolyte  
Amit Saxena, **Pramod Kumar Singh**, B. Bhattacharya  
**Materiali in tehnologije**, 48 (2014) 485-490 (*SCI, Impact Factor 0.714*)

#### **(Year 2015)**

51. A comprehensive study of chalcogenide Quantum Dot Sensitized Solar Cells with a new solar cell exceeding 1V output  
**Renewable and Sustainable Energy Reviews** 52 (2015) 1083-1092 (*SCI, Imp. Factor 9.184*)  
Karan Surana, R. M. Mehra, B. Bhattacharya, A. P. Reddy, Hee-Woo Rhee, **Pramod K. Singh**
52. Dye-sensitized solar cell comprising polyethyl methacrylate doped with ammonium iodide solid polymer electrolyte  
Vivek Kr Singh, B. Bhattacharya, S. Shukla and **Pramod K. Singh**  
**Applied Physics: A** 118 (2015) 877-883 (*SCI, Imp. Factor 1.784*)
53. Synthesis of Graphene Oxide Coated Nafion Membrane for Actuator Application  
Karan Surana, **Pramod K. Singh**, B. Bhattacharya, C. S. Verma and R. M. Mehra  
**Ceramics International** 41 (2015) 5093-5099 (*SCI, Imp Factor 3.450*)

54. New PVP doped NH<sub>4</sub>I solid polymer electrolyte for dye sensitized solar cell  
Vivek K Singh, B. Bhattacharya, S. Shukla, **Pramod K. Singh**  
**Materiali in Tehnologije** 49 (2015) 123-127 (*SCI, Impact Factor 0.714*)
55. Band Gap Tailoring of Ni Doped Ternary Semiconductors for Photovoltaic Applications  
Mitali Sahu, **Pramod K Singh**, S. P. Pandey, B. Bhattacharya  
**Macromolecular Symposia** 347(2015) 68-74
56. Nanoporous TiO<sub>2</sub> and ZnO Photoelectrodes: A Comparative Photovoltaic Performance Study  
Nitin A. Jadhav, S. K. Tomar, **Pramod K Singh**, B. Bhattacharya  
**International Journal of Electroactive Materials** 3 (2015) 1-5
57. Luminescence and EPR studies of ultraviolet light emitting La<sub>2</sub>Zr<sub>2</sub>O<sub>7</sub>:Gd<sup>3+</sup> phosphor powder  
V. Singh, G. Sivaramaiah, J. L. Rao, R. Senthil Kumaran, **Pramod K Singh**, T. S. Kim and L. K. Kim  
**J Mater Sci: Mater Electron** 26 (2015) 5195-5201 (*SCI, Imp. Factor 2.993*)
58. Solid Gellan gum Carbohydrate Polymer Electrolyte for Energy Application  
Rahul Singh, B. Bhattacharya, Hee Woo Rhee, **Pramod K Singh**  
**Int. J. Hydrogen Energy**, 26 (2015) 5195-5201 (*SCI, Imp. Factor 4.084*)
59. New ultraviolet B emission from gadolinium activated BaZrO<sub>3</sub> phosphor - An electron paramagnetic resonance and optical study  
V. Singh, G. Sivaramaiah, J. L. Rao, R. Senthil Kumaran, **Pramod K Singh**, T. S. Kim  
**Journal of Alloys and Compounds** 26 (2015) 1083-1089 (*SCI, Imp. Factor 4.175*)
- (Year 2016)**
60. Electrical, structural and thermal studies of carbon nanotubes from natural legume seeds: kala chana  
Rachana Ranu, Yatishwar Chauhan, **Pramod K Singh**, B. Bhattacharya & S. K. Tomar  
**Phase Transitions** 89(2016) 1146-1154. (*SCI, Imp.Fac. 1.026*)
61. EPR and optical properties of Eu<sup>2+</sup> and Mn<sup>2+</sup> co-doped MgSrAl<sub>10</sub>O<sub>17</sub> blue-green light emitting powder phosphors  
N. Singh, Vijay Singh, G. Sivaramaiah, J. L. Rao, **Pramod K. Singh**, M. S. Pathak, S. J. Dhoble, M. Mohapatra  
**Journal of Luminescence** 178(2016) 479-486. (*SCI, Imp.Fac. 2.961*)
62. Photoluminescence and ESR identification of  $\gamma$ -ray irradiation induced defects responsible for thermoluminescence in Tb<sup>3+</sup> activated CaAl<sub>12</sub>O<sub>19</sub> phosphor  
V Singh, S. Watanabe, T K. Gundu Rao, N. Singh, A K. Srivastava, **Pramod K. Singh**, H. Gao, P. Mardina, S. J. Dhoble  
**Journal of Electroceramics** 37 (2016) 58-65. (*SCI, Imp.Fac. 1.966*)
63. Ion irradiation on polymer electrolyte films: comparative study on conductivity  
Divya Singh, **Pramod K Singh**, B. Bhattacharya  
**High Performance Polymers**, 28 (2016) 1059-1063. (*SCI, Imp. Fac. 1.584*)
64. Perspectives for Solid Biopolymer Electrolytes in Dye Sensitized Solar Cell and Battery Application  
Rahul Singh, B. Bhattacharya, A. P. Reddy, Canan Varlikli, Hee-Woo Rhee, **Pramod K. Singh**  
**Renewable and Sustainable Energy Review** 65 (2016) 1098-1117. (*SCI, Imp. Fac. 9.184*)
65. Efficient dye sensitized solar cell and supercapacitor using 1-Ethyl 3-Methyl imidazolium dicyanamide incorporated PVDF-HFP polymer matrix  
Asmat Nawaz, Rehana Sharif, Hee - Woo Rhee, **Pramod K Singh**  
**Journal of Industrial & Engineering Chemistry** 33 (2016) 381-384. (*SCI, Imp.Fac. 4.841*)
66. Synthesis, characterization and dye sensitized solar cell fabrication using solid biopolymer electrolyte membrane  
Rahul Singh, **Pramod K. Singh**, S. K. Tomar, B. Bhattacharya  
**High Performance Polymers** 28 (2016) 47-54. (*SCI, Imp. Fac. 1.584*)
67. Dip Coated TiO<sub>2</sub> Nano Structured Thin Film: Synthesis and application  
K. Muthukrishnan, M. Vanaraja, S. Boomadevi, R. K. Karn, J. B. B. Rayappan, V. Singh, **Pramod K Singh** and K. Pandiyan  
**Phase Transitions** 89 (2016) 107-114. (*SCI, Imp. Fac. 1.026*)

68. Studies on Acetone sensing characteristics of ZnO thin film prepared by sol-gel dip coating  
K. Muthukrishnan, M. Vanaraja, S. Boomadevi, R. K. Karn, J. B. B. Rayappan, V. Singh, **Pramod K Singh** and K. Pandiyan  
**Journal of Alloys and Compounds** 673 (2016) 138-143 (*SCI, Imp. Fac.* 4.175 )
69. Multi walled Carbon Nanotubes and Ionic liquid doped solid electrolyte for efficient supercapacitor  
**Polymer Bulletin** 73 (2016) 255-263 (*SCI, Imp. Fac.* 1.858)  
**Pramod K. Singh**, Sabin KC, Xuyuan Chen
70. Efficient Perovskite Sensitized Solar Cell using Solid Polymer Electrolyte  
Rahul, B. Bhattacharya, **Pramod K Singh**, Roja Singh, Z. H. Khan  
**Int. J. Hydrogen Energy** 41 (2016) 2847-2852. (*SCI, Imp. Fact.* 4.084)
71. EPR and optical properties of green emitting Mn doped BaMgAl<sub>10</sub>O<sub>17</sub> nano-phosphor prepared by a combustion reaction  
Vijay Singh, M. Mohapatra, G. Sivaramaiah, J.L. Rao, N Singh, H. Gao, J. Li, A K Srivastava, H.D. Jirimali, S.J. Dhoble, **Pramod K Singh**, KVR Murthy, V. Natarajan  
**J Mater Sci: Mater Electron** 27 (2016) 3697-3703. (*SCI, Imp. Factor* 2.993)
72. The effect of CuO and NiO doping on dielectric and ferroelectric properties of Ba<sub>0.5</sub>Na<sub>0.5</sub>TiO<sub>3</sub> lead free ceramics  
Sunanda Kakroo, Arvind Kumar, S. K. Mishra and **Pramod K Singh**  
**Phase Transitions** 89 (2016) 211-220. (*SCI, Imp. Fac.* 1.026)
73. Dip Coated Nanostructured ZnO Thin Film: Synthesis and Application.  
K. Muthukrishnan, M. Vanaraja, S. Boomadevi, R. K. Karn, J. B. B. Rayappan, V. Singh, **Pramod K Singh** and K. Pandiyan  
**Ceramics International** 42 (2016) 4413-4420. (*SCI, Imp. Factor* 3.450 )
74. Visible up-conversion and infrared luminescence of Er<sup>3+</sup>/Yb<sup>3+</sup>/Zn<sup>2+</sup> co-doped c-LiAlO<sub>2</sub> phosphor  
V. Singh, V.K. Rai, I.L. Rak, N. Singh, H. Gao, J. Li, A. K. Srivastava, **P. K. Singh**  
**J Mater Sci: Mater Electron** 27 (2016) 886-891. (*SCI, Imp. Factor* 2.993 )
75. Visible upconversion luminescence of Yb co-doped Gd<sub>2</sub>Zr<sub>2</sub>O<sub>7</sub>:Er prepared by a solution combustion reaction  
V. Singh, V.K. Rai, H. Gao, N. Singh, J. Li, A. K. Srivastava, R. Senthil Kumaran, **Pramod K Singh**  
**J Mater Sci: Mater Electron** 27 (2016) 310-315. (*SCI, Imp. Factor* 2.993)
76. Combustion Synthesized Cr<sup>3+</sup>-doped-BaMgAl<sub>10</sub>O<sub>17</sub> Phosphor: An Electron Paramagnetic Resonance and Optical Study  
Vijay Singh, G. Sivaramaiah, J.L. Rao, A K Srivastava, R.V.S.S.N. Ravikumar, S.J. Dhoble, **P. K. Singh**, and M. Mohapatra  
**Journal of Electronic Materials** 45 (2016) 365-373 (*SCI, Imp. Factor* 1.676)
77. Optical characterization, absorption and upconversion luminescence in Er<sup>3+</sup> and Er<sup>3+</sup>/Yb<sup>3+</sup> doped In<sub>2</sub>O<sub>3</sub> phosphor  
Vijay Singh, M. Seshadri, N. Singh, M.S. Pathak, R. Senthilkumarn, Y. K. Choi, **Pramod K Singh**, S.J. Dhoble, A K Srivastava  
**Journal of Luminescence** 176 (2016) 347-355. (*SCI, Imp. Factor* 2.961)
78. Combustion synthesized Fe doped CeO<sub>2</sub> powder-characterization, optical absorption and EPR spectroscopy  
V. Singh, G. Sivaramaiah, J.L. Rao, N. Singh, A K Srivastava, **Pramod K Singh**, S. U. Pawar, H. Gao, P. Mardina  
**J Mater Sci: Mater Electron** 27 (2016) 4494-4500 (*SCI, Imp. Factor* 2.993)
79. Eu<sup>2+</sup> and Mn<sup>2+</sup> Co-doped BaMgAl<sub>10</sub>O<sub>17</sub> Blue- and Green Emitting Phosphor: A Luminescence and EPR Study  
Vijay Singh, G. Sivaramaiah, J.L. Rao, N. Singh, A K Srivastava, H.D. Jirimali, J. Li, H. Gao, R. Senthilkumarn, **Pramod K Singh**, and S.J. Dhoble  
**Journal of Electronic Materials** 45 (2016) 2776-2783 (*SCI, Imp. Factor* 1.676)
80. Cr<sup>3+</sup>-Doped Yb<sub>3</sub>Ga<sub>5</sub>O<sub>12</sub> Nanophosphor: Synthesis, Optical, EPR, Studies  
Vijay Singh, G. Sivaramaiah, J.L. Rao, N. Singh, M.S. Pathak, H.D. Jirimali, **Pramod K. Singh**, Anoop K. Srivastava, S.J. Dhoble, and M. Mohapatra  
**Journal of Electronic Materials** 45 (2016) 4076-4082 (*SCI, Imp. Factor* 1.676)

(Year 2017)

81. Carbon Nanotubes using Spray pyrolysis: Recent Scenario  
Annubhawi Annu, **Pramod K Singh**, P.K. Shukla, H - W Rhee and B. Bhattacharya  
**J. Alloys and Compounds** 691 (2017) 970-982. (*SCI, Imp.Fac.* 4.175)
82. Visible upconversion in Er<sup>3+</sup>/Yb<sup>3+</sup> co-doped LaAlO<sub>3</sub> phosphors  
Vijay Singh, V.K. Rai, N. Singh, M.S. Pathak, M. Rathaiah, V. Venkatramu, R. V. Patel, **Pramod K. Singh**, S.J. Dhoble  
**Spectrochimica Acta Part A** 171 (2017) 229-235. (*SCI, Imp.Fac.* 2.931)
83. Studies of radiation-induced defects in Li<sub>2</sub>SiO<sub>3</sub>:Sm phosphor material  
N. Singh, Vijay Singh, S. Watanabe, T. K. Gundu Rao, J. F. D. Chubaci, N. F. Cano, M. S. Pathak, **Pramod K. Singh**, S. J. Dhoble  
**Journal of Electronic Materials** 46 (2017) 451-457. (*SCI, Imp.Fac.* 1.676)
84. Probing the Thermodynamic and Magnetic Properties of UV-B-Emitting GdAlO<sub>3</sub> Phosphors by ESR and Optical Techniques  
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Gaurav Nath, Pawan S Dhapola, NG Sahoo, Shruti Singh, Vijay Singh and **Pramod K Singh**  
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### **Book/Chapter (7): Published:6; Under Publication:1**

#### **Published (5)**

1. Chapter topic “Present scenario of solid state photoelectrochemical solar cell and dye sensitized solar cell using PEO-based polymer electrolytes” Nova Science Publishers, Inc., USA (2011)  
[https://www.novapublishers.com/catalog/product\\_info.php?products\\_id=17538](https://www.novapublishers.com/catalog/product_info.php?products_id=17538)
2. *Nanotechnology and Nanomaterials* » “*Recent Applications in Sol-Gel Synthesis*”, book edited by Usha Chandra, ISBN 978-953-51-3246-2, Print ISBN 978-953-51-3245-5, Published: July 5, 2017 under [CC BY 3.0 license](https://creativecommons.org/licenses/by/3.0/). © The Author(s).

#### **Chapter 6**

Recent Characterisation of Sol-Gel Synthesised  $\text{TiO}_2$  Nanoparticle

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Rahul Singh, **Pramod K. Singh**, B. Bhattacharya  
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#### **5. Polymer Electrolytes: Applications and Challenges (Volume 2) (2020) Published by Willey Chapter 11**

Polymer Electrolytes for Perovskite Solar Cell and Challenges (Pages: 339-363)

Rahul Singh, Hee-Woo Rhee, Bhaskar Bhattacharya, Pramod K. Singh

Book Editor(s): Tan Winie Abdul K. Arof, Sabu Thomas  
<https://onlinelibrary.wiley.com/doi/10.1002/9783527805457.ch11>

## 6. Composite Materials Properties, Characterisation, and Applications

By [Amit Sachdeva](#), [Pramod Kumar Singh](#), [Hee Woo Rhee](#)

Copyright Year 2021 (CRC Press, Taylor & Francis)

## 7. Emerging Trends in Nanotechnology (2021) Published by Willey Chapter 2

Studies on Dye sensitized solar cells incorporated with perovskite as sensitizer dye (Pages: 45-82)

Rahul, Sultan Ahmad, **Pramod K Singh**, Zihsan Husain Khan

### Communicated: 6

1. Nickel Oxide as Efficient Hole Transport Material for Sandwich Structured Perovskite Solar Cell  
Monika Srivastava, Karan Surana, **Pramod Kumar Singh**, Ram Chandra Singh  
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N.F. Mazuki, Pramod K. Singh and A.S. Samsudin
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Communicated in **Material Today Proceedings**
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Pawan Singh Dhapola, Manoj Karakoti; Pramod K. Singh; Nanda Gopal Sahoo  
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Tejas Sharma, Pawan Singh Dhapola, Pramod Kumar Singh  
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## Miscellaneous Training / Awards etc.

### Best Poster awards:

1. Sixth Asian Conference on Solid State Ionics held at Surajkund, India in Dec. 1998.
2. 1<sup>st</sup> International Conference on Electroactive Polymer held at Dalhousie, India, Nov. 1-5, 2004
3. HOMRC workshop, Muju, S. Korea, June 14-16, 2006

### **Research Work Done during Ph.D: (Total 8 Years; from 1995-2003)**

The main area of my research is "Ion conducting polymers, Solid composites." I developed some mixed (ion+electron) conducting **polymeric films** by "in situ" dispersing nano size semiconductors PbS, CdS, ZnS etc. during the period of my Ph.D. thesis work. Interesting results on structural and electrical properties of PEO -films were obtained when **nano - size semiconductors** were dispersed. Apart from enhancement in ionic conductivity at some optimum composition, films were found to have different absorption spectra as a result of quantum-size effect.

### **Research Work Done during Post Doc: (~ 6 Years)**

**(a) In India (Banaras Hindu University; from 2003-2005, as SRF/Research Associate)**

As a part of my postdoctoral work in India, the following studies have been carried out:-

- (i) To improve electrical/ mechanical properties of polymer electrolyte films, I have dispersed ferroelectric ceramic powders having high dielectric constant.

- (ii) Thermal diffusivity of polymer composites having different electrical conductivity has been measured by Photoacoustic Technique. A correlation has been established.

**(b) In S. Korea (Sogang University; from 1-7-2005 ~ 30-7-2009 as Post-Doc/Research Professor)**

As a part of my postdoctoral work in S. Korea, I have concentrated on fabrication and characterization of mesoporous TiO<sub>2</sub> electrode and PEO/ Ionic liquids as electrolyte for Dye sensitized solar cell (DSSC) application. Since I have basic knowledge of polymer electrolyte during my Ph.D., I have successfully fabricated mesoporous TiO<sub>2</sub> electrode (pore diameter ~13 nm) having thickness ~10 μm and TiO<sub>2</sub> interchannel particles (particle size ~20-25 nm). In electrolyte it has been found that the doping of Ionic liquid enhances ionic conductivity by reducing crystallinity. DSSC without ionic liquid showed 1.04 % efficiency while doping of ionic liquid enhances efficiency (1.23 %) at 1 sun light intensity (100 mW/cm<sup>2</sup>). Further the optimization of solar cell efficiency by modifying the TiO<sub>2</sub> electrode and new solid polymer/IL electrolytes (Chitosan, Biopolymer) showed that efficiency could reach ~2-3 % at 1 sun condition.

**(c) In Sharda University, Greater Noida, India ( from 1-8-2009 ~ 10-5-2014) as Teacher/Researcher)**

After return back from South Korea I have joined Sharda University, India as a Assistant Professor in 2009. I have taught many courses in UG and PG level (mentioned above). During above said period apart from teaching I have well established a well equipped lab. known as Material Research Lab. In Sharda University and actively carried our research activity in an International status. More details can be find as [www.materialsresearchlab.net](http://www.materialsresearchlab.net)

Soon I have well equipped lab with researchers I have move forward in Polymer electrolyte area, Nanomaterials, Dye sensitized solar cell and published ~32 International Publication. With this achievement I have promoted as Associate Professor in year 2012 and continue my service till. 10-5-2014.

**(d) In Norway ( Vestfold University College, Norway from 25-5-2014 to 30-7-2015 as Post-Doc)**

During post doc journey in Norway, with my earlier experience in Dye sensitized solar cell I had worked on “EDLC and ESC Supercapacitor’s on Si-chip”.

**(e) In Turkey (Solar Energy Institute, Ege University, Turkey from 30-9-2015 ~30-7-2016 as TUBITAK fellow)**

In 2015, I got selected in TUBITAK fellow with Prof. Canan Verlikli, Ege University, Turkey and join here on 30<sup>th</sup> Sept. 2015. Within my earlier experience in Dye sensitized solar cell and Supercapacitor I have attempted and establish some novel work on “EDLC Supercapacitor’s using solid polymer electrolyte”.

**Paper presented in Seminar/Conferences/Symposia: (Total 37)**

**National (in India): Total 13**

- (1) Presented a paper entitled “**Studies on a proton conducting composite**” in the Second National Conference on SSI held at IIT, Madras, Feb. 1996.
- (2) Presented a paper entitled “**Fast proton transport in N<sub>2</sub>H<sub>6</sub>SO<sub>4</sub>:ZrO<sub>2</sub> composite and ion transport properties**” in the 3<sup>rd</sup> National Conference on SSI, at NERIST, Itanagar, 1998.
- (3) Presented a paper entitled “**Conductivity of Polymer composites with high dielectric constant ferroelectric ceramics and high band gap semiconductors as dispersoids**” in the Fifth National Conference on SSI held at Nagpur, 2002.
- (4) Presented a paper entitled “**Ionic Conductivity Enhancement in Dispersed Phase Composites: Evidence of Two Percolation Threshold**” in the National Seminar on Advanced Materials held at DDU Gorakhpur University, Gorakhpur **22-24<sup>th</sup> March, 2002**.
- (5) Presented a poster entitled “**Electroactive polymer composites for solid state ionic device applications**” in the 15<sup>th</sup> AGM of Materials Research Society held at Banaras Hindu University, Varanasi, **9-11Feb.,2004**.
- (6) Participated in the Conference on Disorder,Complexity and Biology (DISCOMB04) held at Banaras Hindu University, Varanasi, **12-15<sup>th</sup> July,2004**.
- (7) Presented a paper entitled “**Ionic Conductivity Enhancement in Polymer Electrolyte: Role of Dielectric constant**” in the 6<sup>th</sup> National Conference on SSI held at Jadavpur University, Kolkata, India, **Oct. 5-7,2004**.
- (8) Presented a paper entitled “**Application of Ionic Liquid Doped Solid Polymer Electrolyte in Dye Sensitized Solar Cell area**” in the Two Days National Conference on Emerging Technologies:Nanotechnology & Cryogenics held at G. L. Bajaj Institute of Technology & Management, Greater Noida, India, **Oct. 30-31, 2009**.
- (9) Presented a paper entitled “**Application of Solid Polymer Electrolyte in DSSC**” in National Conference on recent trends in materials and devices held at Amity Institute of Applied Sciences, Amity University, G. Noida, U.P., India, **May 20-22, 2010**.

- (10) Present a paper entitled “**PEO-based Polymer Electrolyte: A novel material for DSSC application**” in National Conference on Solar Cell held at ITS Engee. College, G. Noida, U.P., India, **March 23-24, 2011**.
- (11) Presented a paper entitled “**Ionic Liquid-Solid Polymer Electrolyte for Electrochemical Devices**” in the Three Days National Conference on Synthesis, Characterization & Application of Advanced Nanomaterials in HCST, Mathura, India, **January 17-19, 2014**.
- (12) Presented a paper entitled “**Synthesis and characterization of  $\text{CH}_3\text{CH}_2\text{NH}_3\text{PbI}_3$  perovskite & its photovoltaic performance**” in the Two Days National Conference on Nano Devices held in HCST, Mathura, India, **April 18-19, 2015**.
- (13) Going to present an Invited Talk on “**POLYMER –IONIC LIQUID SOLID ELECTROLYTE FOR ENERGY APPLICATIONS**” in Online National Conference on Recent Advances in Functional Materials (RAFM-2020) 05-06th November, 2020, ARSD College, New Delhi, India

## **International: Total 28**

- (1) Presented a paper entitled “**Semiconductor Dispersed Polymer Electrolyte Composites**” in the International Conference on SSI held at Cairns, Australia, July 8-13, 2001.
- (2) Presented a paper entitled “**Dependence of Ionic Conductivity and Thermal Diffusivity on the concentration of dispersed insulating fillers in Polymer Electrolytes**” in the International Conference on Electroactive Polymers: Materials and Devices held at Dalhousie, India, Nov. 1-5, 2004.
- (3) Presented a paper entitled “**PEO - based Polymer electrolyte for DSSC application**” in the Polymer Society of Korea Conference held at Ilson, S. Korea, April 6-7, 2006
- (4) Presented a poster entitled “**PEO- Polymer electrolytes incorporated with Ionic Liquid for Dye sensitized Solar cell**” in the 17<sup>th</sup> Symposium on Molecular Electronics and Devices “ME & D” held at Hanyang University, Seoul, S. Korea, June 22-23, 2006
- (5) Presented a paper entitled “**Dye Sensitized Solar Cell using Polymer Electrolytes based on Poly(ethylene oxide) with an ionic liquid**” in the IUPAC International Conference (PSK 30) held at Busan, S. Korea, Oct. 10-13, 2006.
- (6) Attended a Symposium entitled “**Recent Progress in Solar Cells**” held at Chonbuk National University, Junjoo, S. Korea, Feb. 2, 2007.
- (7) Attended the 2<sup>nd</sup> K-J Symposium and presented a poster entitled “**Dye Sensitized Solar Cells using Thick mesoporous  $\text{TiO}_2$  electrode and polymer/ionic liquid as electrolyte**” (P 20) held at KIST, Seoul, S. Korea, Aug. 30-31, 2007.
- (8) Attended the 3<sup>rd</sup> East Asia Symposium on Functional Dyes & Advanced Materials and presented a poster entitled “**Thick mesoporous  $\text{TiO}_2$  electrode and ionic liquid incorporated polymer electrolyte for DSSC application**” held at Ulson, S. Korea, October 10-12, 2007.
- (9) Attended the International Conf. on Nano Science and Nano Technology (GJ-NST 2007) and presented a paper entitled “**Nanocrystalline porous  $\text{TiO}_2$  electrode with ionic liquid impregnated solid polymer electrolyte for DSSC**” held at Gwangju, Korea, Nov. 8-9, 2007.
- (10) Attend the World Forum on Advanced Materials (POLYCHAR 16) and presented a paper entitled “**Ionic liquid (1 propyl 3 methyl imidazolium iodide) with polymer electrolyte for DSSC application**” held at Lucknow, India, Feb. 17-21, 2008.
- (11) Presented an ORAL Talk in 19<sup>th</sup> IC ME & D on topic “**Development and characterization of ionic liquid doped solid polymer electrolyte membranes for better efficiency**” held at Ajou Univ., Suwon, S. Korea, May 29-30, 2008.
- (12) Presented a Poster entitled “**Ionic liquid incorporated polymer electrolytes for DSSC**” in RENEWABLE ENERGY 2008 held at BEXCO, Busan, S. Korea, Oct. 13-14, 2008.
- (13) Presented an ORAL Talk in Korean Polymer Society Spring Conference on topic “**Biopolymer-ionic composite membranes for dye sensitized solar cell**” held at Daejeon, S. Korea, April 9-10, 2009.
- (14) ORAL TALK on topic “**Porous nanocrystalline  $\text{TiO}_2$  electrode and poly (N-methyl 4-vinylpyridine iodide) –**

**ionic liquid solid polymer electrolyte for device application**” in the International Conference cum Workshop on Nanoscience & Nanotechnology to be held at Ansal Institute of Technology, Gurgaon, India, October 12-16, 2009.

- (15) Present a paper entitled **“Ionic liquid doped solid polymer electrolyte: A novel material for DSSC Application”** in the International Conference on Electroactive Polymers: Materials and Devices held at Dalhousie, India, Nov. 1-5, 2010.

#### **Year 2012-13**

- (16) Presented a paper entitled **“Biopolymer gel electrolytes for electrochemical Application”** in the 5<sup>TH</sup> International Conference on Electroactive Polymers: Materials and Devices held at Banaras Hindu University, Varanasi, India, Nov. 4-9, 2012.

- (17) Attended the World Forum on Advanced Materials (**POLYCHAR 21**) and presented a paper entitled **“New Polymer electrolyte for Electrochemical Application”** to be held at Gwangju, S. Korea, March 11-15, 2013.

#### **Year 2014-15**

- (18) Presented an invited paper entitled **“Microsupercapacitors based on doped Si-grass electrode and solid gel electrolyte** in the 5<sup>TH</sup> International Conference on Functional Materials and Devices (ICFMD 2015) held at University of Malaya, Malaysia, August 4-6, 2015

#### **Year 2015-16**

- (19) Presented a poster entitled **“1- Propyl -3- methyl imidazolium bis(trifluoromethyl sulfonyl)imide blended gel polymer electrolyte for supercapacitor application** in the International Symposium for the 80th Birthday of Prof. Alan J. Heeger (Nobel prize 2000) held at Johannes Kepler University of Linz, Austria, **March 21, 2016**.

- (20) Presented an Invited Talk on **“Solid ionic liquid - polymer electrolyte for dual energy application”** in the **International Conference on Functional Materials-2016** held at PSN College of Engineering and Technology, Tirunelveli - 627152, Tamilnadu, India, **7-10 September 2016**

#### **Year 2016-17**

- (21) Present an invited talk entitled **“Ionic Liquid - polymer electrolyte for Dual Energy Devices** in the 6th International Conference on Functional Materials & Devices 2017 (ICFMD - 2017) held at MELAKA, MALAYSI A from August 15 to 18, 2017.

#### **Year 2017-18**

- (22) Attended the International Symposium on Computational Science and its Applications held at Sharda University, India, February 5-6, 2018.

#### **Year 2018-19**

- (23) Presented an invited Talk entitled **“Ionic liquid doped solid polymer electrolyte for energy devices** in the 15<sup>TH</sup> International Conference on Frontiers of Polymers and Advanced Materials (ICFPAM 2019) held at Penang, **Malaysia**, June 17-21, 2019 and chaired a Session.

- (24) Presented an invited Talk entitled **“Low viscosity Ionic liquid doped solid polymer electrolyte for energy applications”** in the Energy, Functional Materials and Nanotechnology (ICEFN-2019, **24-26<sup>th</sup> May 2019**) held at Kumaun University, Nanital, **India**

- (25) Presented an invited Talk entitled **“Ionic liquid doped solid polymer electrolyte for energy devices** in the International Conference on “Recent Trends in Materials and Devices”-ICRTMD-2019, **during 18-19<sup>th</sup> December, 2019** at Amity University Uttar Pradesh, Noida, India and Jury Member for Poster Session.

#### **Year 19-20**

- (26) Presented an invited Talk entitled **“Ionic liquid incorporated polymer electrolyte for dual energy devices”** in the International e-Conference on Advanced Functional Materials and Optoelectronic Devices” (ICAFMOD-2020) , during 13-15 June, 2020 at Prof. Rajendra Singh (Rajju Bhaiya) Institute of Physical Sciences for Study and Research, Veer Bahadur Singh Purvanchal University, Jaunpur-222003, U.P., India.

#### **Year 20-21**

- (27) Presented an Oral Talk entitled **“ Energy devices based on Polymer- Ionic Electrolyte”** in the 4<sup>th</sup> Int. **"COMMUNICATION IN THE NEW WORLD"** Congress, **TOKYO, Japan**, February **19-21, 2021**.

- (28) Presented an Oral Talk entitled **“Stable, Application of low viscosity Ionic liquid in developing energy devices”** in the International **MAS 14th INTERNATIONAL EUROPEAN CONFERENCE ON**

## **References:**

**1. Prof. Hee –Woo Rhee**

Sogang University, #1 Shinsoo-dong, Mapo-gu,  
Seoul 121-742, **Republic of Korea**  
Tel.: (02) 705-8483; Fax : (02)711-0439  
E mail: **hwrsogang@gmail.com**

**2. Prof. Ranveer Kumar**

M.Sc., M.Phil, Ph.D.  
Dr. H. S. Gour University SAGAR - 470 003 (M.P.) **INDIA**  
Ph. +91-7582-22417 (Office); +91-9425635731 (Mob);  
Fax. +91-7582-23236 (Office)  
E mail: **solidranveer@gmail.com**