



**Department of Physics**  
**Faculty of Science / University of Peradeniya**



**Prof. T. M. W. J. Bandara**

*B.Sc. (Ruhuna.), M.Phil. (Perad.), Ph.D. (Perad.)*

**Professor in Physics**

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**Higher Education Qualifications**

🎓 **PhD**

University of Peradadeniya  
Sri Lanka  
(2010)

🎓 **MPhil**

University of Ruhuna  
Sri Lanka  
(2001)

🎓 **BSc**

University of Ruhuna  
Sri Lanka  
(1996)

## Awards, Scholarships, Memberships & Fellowships



NRC Merit Award for Scientific Research Award for Year 2017



Presidential Research Awards 2016 for scientific publications



Presidential Research Awards 2015 for scientific publications



Presidential Research Awards 2014 for scientific publications



Presidential Research Awards 2013 for scientific publications



Presidential Research Awards 2012 for scientific publications



NRC Merit Award for Scientific Publication 2011



Presidential Research Awards 2010 for scientific publications



Presidential Research Awards 2009 for scientific publications



Presidential Research Awards 2001 for scientific publications

## Positions Held









Senior lecturer, Department of Physics, Faculty of Science, Rajarata University of Sri Lanka - (2010 to 2017)



Probationary lecturer, Department of Physics, Faculty of Science, Rajarata University of Sri Lanka- (2003 to 2010)






## My Teachings

-  AS402: Research Methodology & Scientific Writing – 3 credits
-  AS461: Semiconductor Device Technology and Application
-  ES313: Energy Weather and Environment
-  PH262: Energy Weather and Environment
-  PH374: Experimental Techniques and Material Characterization
-  PH516: Materials Characterization Techniques

## Research Interests (Research Fields/ Projects)

Sustainable energy, Photo-electrochemical solar cells, Electro-physics, Dielectric analysis, Chemical Physics, Graphene, and Graphene quantum dots, Supercapacitors.

## Ongoing Research and Projects

-  **Counter ion effects on electrolytes in dye sensitized solar cells**
-  **Enhancement of Light harvesting efficiency of photo-electrodes in solar cells**
-  **Bio polymer, Agar based, gel polymer electrolyte for electrochemical power sources**
-  **EXFOLIATION OF GRAPHITE INTO GRAPHENE**
-  **PREPARATION OF LOW COST AND HIGHLY EFFICIENT SUPER CAPACITORS**

## Key Publications



Physical Chemistry Chemical Physics - (2012)

Efficiency enhancement in dye sensitized solar cells using gel polymer electrolytes based on a tetrahexylammonium iodide and MgI<sub>2</sub> binary iodide system.



Solar energy materials and solar cells - (2001)

H<sub>2</sub> evolution from a photoelectrochemical cell with n-Cu<sub>2</sub>O photoelectrode under visible light irradiation

## Conferences



**Solar Asia 2018 Int. Conf.**

**HELD AT :** National Institute of Fundamental Studies - (2018)

**TOPIC :** *Quasi Solid State Quantum Dot-Sensitized Solar Cells*



**Solar Asia 2018 Int. Conf.**

**HELD AT :** National Institute of Fundamental Studies - (2018)

**TOPIC :** *Mixed Cation Effect in Gel Polymer Electrolytes Intended for Solar Cells*



**Solar Asia 2018 Int. Conf.**

**HELD AT :** National Institute of Fundamental Studies - (2018)

**TOPIC :** *FTIR Analysis of Ethylene Carbonate Electrolytes for Batteries and Dye Sensitized Solar Cells*



**Solar Asia 2018 Int. Conf.**

**HELD AT :** National Institute of Fundamental Studies - (2018)

**TOPIC :** *Measurement Scan Rate Dependence of Photo-Electrochemical Solar Cell Performance*



**15th International Conference on Frontiers of Polymers and Advanced Materials (ICFPAM 2019)**

**HELD AT :** Penang, Malaysia. - (17 - 21 June 2019,)

**TOPIC :** *Density, Mobility and Diffusion Coefficient of Charge Carriers in Polymer Electrolytes Using Complex Impedance Analysis*

## My Publications

Please goto the website.

<https://sci.pdn.ac.lk/physics/staff/Wijendra-Bandara>