

References

- Aberle, A.G., (2009), "Thin-Film Solar Cells", *Thin Solid Films* , Vol.517, No.17, pp 4706–4710.
- Abramoff, M.D., Magalhães, P.J. and Ram, S.J., (2004), "Image Processing with imageJ", *Biophotonics International* , Vol.11, No.7, pp 36–41.
- Alsema, E.A. and de Wild-Scholten, M.J., (2005), "Environmental Impact of Crystalline Silicon Photovoltaic Module Production", *MRS Proceedings* , Vol.895, No.January, pp 895-G03-5.
- Bang, J.H. and Kamat, P. V., (2009), "Quantum Dot Sensitized Solar Cells. A Tale of Two Semiconductor Nanocrystals: CdSe and CdTe", *ACS Nano* , Vol.3, No.6, pp 143–154.
- Benick, J., Richter, A., Müller, R., Hauser, H., Feldmann, F., Krenckel, P., Riepe, S., Schindler, F., Schubert, M.C., Hermle, M., Bett, A.W., Glunz, Glunz, S.W., (2017), "High-Efficiency N-Type HP Mc Silicon Solar Cells", *IEEE Journal of Photovoltaics* , Vol.7, No.5, pp 1171–1175.
- Burnside, S., Moser, J.-E., Brooks, K., Grätzel, M. and Cahen, D., (1999), "Nanocrystalline Mesoporous Strontium Titanate as Photoelectrode Material for Photosensitized Solar Devices: Increasing Photovoltage through Flatband Potential Engineering", *The Journal of Physical Chemistry B* , Vol.103, No.43, pp 9328–9332.
- Cahen, D., Hodes, G., Grätzel, M., Guillemoles, J.F. and Riess, I., (2000), "Nature of Photovoltaic Action in Dye-Sensitized Solar Cells", *The Journal of Physical Chemistry B* , Vol.104, No.9, pp 2053–2059.
- Chakrapani, V., Tvrđy, K. and Kamat, P. V., (2010), "Modulation of Electron Injection in CdSe-TiO₂ System through Medium Alkalinity.", *Journal of the American Chemical Society* , Vol.132, No.4, pp 1228–1229.
- Chen, C., Dai, Q., Miao, C., Xu, L. and Song, H., (2015), "Strontium Titanate Nanoparticles as the Photoanode for CdS Quantum Dot Sensitized Solar Cells", *RSC Adv.* , Vol.5, No.7, pp 4844–4852.
- Chen, H.Y., Lin, L., Yu, X.Y., Qiu, K.Q., Lü, X.Y., Kuang, D. Bin and Su, C.Y., (2013), "Dextran Based Highly Conductive Hydrogel Polysulfide Electrolyte for Efficient Quasi-Solid-State Quantum Dot-Sensitized Solar Cells", *Electrochimica Acta* , Vol.92, pp 117–123.
- Chiu, P.T., Law, D.C., Woo, R.L., Singer, S.B., Bhusari, D., Hong, W.D., Zakaria, A., Boisvert, J., Mesropian, S., King, R.R., Karam, N.H., (2014), "35.8% Space and 38.8% Terrestrial 5J Direct Bonded Cells", 2014 IEEE 40th Photovoltaic Specialist Conference, PVSC 2014 pp 11–13.
- Choi, S.H., Hwang, D., Kim, D.Y., Kervella, Y., Maldivi, P., Jang, S.Y., Demadrille, R., Kim, I.D., (2013), "Amorphous Zinc Stannate (Zn₂SnO₄) Nanofibers Networks as Photoelectrodes for Organic Dye-Sensitized Solar Cells", *Advanced Functional Materials* , Vol.23, No.25, pp 3146–3155.
- Conesa, J.C., (2013), "Band Structures and Nitrogen Doping Effects in Zinc Titanate Photocatalysts", *Catalysis Today* , Vol.208, pp 11–18.
- Dao, V.D., Choi, Y., Yong, K., Larina, L.L. and Choi, H.S., (2015), "Graphene-Based Nanohybrid Materials as the Counter Electrode for Highly Efficient Quantum-Dot-Sensitized Solar Cells", *Carbon* , Vol.84, No.1, pp 383–389.
- Denosb, Y., (1996), "The Phase Stability of Zn₂Ti₃O₈", *Materials Characterization* , Vol.37, No.2–3, pp 153–159.
- Du, J., Du, Z., Hu, J.-S., Pan, Z., Shen, Q., Sun, J., Long, D., Dong, H., Sun, L., Zhong, Xinhua, Z., Wan, L.-J., (2016), "Zn-Cu-In-Se Quantum Dot Solar Cells with a Certified Power Conversion Efficiency of 11.6%", *Journal of the American Chemical Society* , Vol.138, No.12, pp 4201–4209.
- Džimbeg-malčić, V., Barbarić-mikočević, Ž. and Itrić, K., (2012), "Kubelka-Munk Theory in Describing Optical Properties of Paper (1)", *Technical Gazette* , Vol.19, No.1, pp 191–196.
- Fan, S.Q., Fang, B., Kim, J.H., Kim, J.J., Yu, J.S. and Ko, J., (2010), "Hierarchical Nanostructured Spherical Carbon with Hollow Core/mesoporous Shell as a Highly Efficient Counter

- Electrode in CdSe Quantum-Dot-Sensitized Solar Cells", *Applied Physics Letters* , Vol.96, No.6, pp 2008–2011.
- Fang, J., Wu, J., Lu, X., Shen, Y. and Lu, Z., (1997), "Sensitization of Nanocrystalline TiO₂ Electrode with Quantum Sized CdSe and ZnTCPC Molecules", *Chemical Physics Letters* , Vol.270, No.1-2, pp 145–151.
- Firoozi, N., Dehghani, H. and Afrooz, M., (2015), "Cobalt-Doped Cadmium Sulfide Nanoparticles as Efficient Strategy to Enhance Performance of Quantum Dot Sensitized Solar Cells", *Journal of Power Sources* , Vol.278, pp 98–103.
- González-Pedro, V., Xu, X., Mora-Seró, I. and Bisquert, J., (2010), "Modeling High-Efficiency Quantum Dot Sensitized Solar Cells", *ACS Nano* , Vol.4, No.10, pp 5783–5790.
- Gopi, C.V.V.M., Venkata-Haritha, M., Kim, S.-K. and Kim, H.-J., (2015), "Improved Photovoltaic Performance and Stability of Quantum Dot Sensitized Solar Cells Using Mn-ZnSe Shell Structure with Enhanced Light Absorption and Recombination Control", *Nanoscale* , Vol.7, No.29, pp 12552–12563.
- Green, M.A., (2001), "Third Generation Photovoltaics: Ultra-High Conversion Efficiency at Low Cost", *Progress in Photovoltaics: Research and Applications* , Vol.9, No.2, pp 123–135.
- Green, M.A., (2004), "Recent Developments in Photovoltaics", *Solar Energy* , Vol.76, pp 3–8.
- Gregg, B.A., (2003), "Excitonic Solar Cells", *The Journal of Physical Chemistry B* , Vol.107, No.20, pp 4688–4698.
- Gregg, B.A. and Hanna, M.C., (2003), "Comparing Organic to Inorganic Photovoltaic Cells: Theory, Experiment, and Simulation", *Journal of Applied Physics* , Vol.93, No.6, pp 3605–3614.
- Gregg, B., Fox, M. and Bard, A., (1990), "Photovoltaic Effect in Symmetrical Cells of a Liquid Crystal Porphyrin", *Journal of Physical Chemistry* , Vol.94, No.16, pp 1586–1598.
- Guijarro, N., Campiña, J.M., Shen, Q., Toyoda, T., Lana-Villarreal, T. and Gómez, R., (2011), "Uncovering the Role of the ZnS Treatment in the Performance of Quantum Dot Sensitized Solar Cells.", *Physical chemistry chemical physics : PCCP* , Vol.13, No.25, pp 12024–12032.
- Guijarro, N., Lana-villarreal, T., Mora-Sero, I., Bisquert, J. and Gomex, R., (2009), "CdSe Quantum Dot-Sensitized TiO₂ Electrodes : Effect of Quantum Dot Coverage and Mode of Attachment", *J. Phys. Chem. C* , Vol.113, pp 4208–4214.
- Guyot-Sionnest, P., Shim, M., Matrangola, C. and Hines, M., (1999), "Intraband Relaxation in CdSe Quantum Dots", *Physical Review B* , Vol.60, No.4, pp R2181–R2184.
- Ha Thanh, T., Huynh Thanh, D. and Quang Lam, V., (2014), "The CdS/CdSe/ZnS Photoanode Cosensitized Solar Cells Based on Pt, CuS, Cu₂S, and PbS Counter Electrodes", *Advances in Optoelectronics* , Vol.2014, No. February,.
- Habibi, M.H., Mikhak, M., Zendehtdel, M. and Habibi, M., (2012), "Influence of Nanostructured Zinc Titanate, Zinc Oxide or Titanium Dioxide Thin Film Coated on Fluorine Doped Tin Oxide as Working Electrodes for Dye-Sensitized Solar Cell", *International Journal of Electrochemical Science* , Vol.7, No.8, pp 6787–6798.
- Halas, S., (2006), "100 Years of Work Function", *Materials Science-Poland* , Vol.24, No.4, pp 20–31.
- Halder, G. and Bhattacharyya, S., (2015), "Plight of Mn Doping in Colloidal CdS Quantum Dots to Boost the Efficiency of Solar Cells", *Journal of Physical Chemistry C* , Vol.119, No.24, pp 13404–13412.
- Hanna, M.C. and Nozik, a. J., (2006), "Solar Conversion Efficiency of Photovoltaic and Photoelectrolysis Cells with Carrier Multiplication Absorbers", *Journal of Applied Physics* , Vol.100, No.7, pp 1–8.
- Henry, C.H., (1980), "Limiting Efficiencies of Ideal Single and Multiple Energy Gap Terrestrial Solar Cells Limiting Efficiencies of Ideal Single and Multiple Energy Gap Terrestrial Solar Cells", *Journal of Applied Physics* , Vol.51, No.8, pp 4494–4500.
- Hod, I. and Zaban, A., (2014), "Materials and Interfaces in Quantum Dot Sensitized Solar Cells : Challenges , Advances and Prospects", *Langmuir* , Vol.30, No.25, pp 7264–7273.
- Hodes, G., (2008), "Comparison of Dye- and Semiconductor-Sensitized Porous Nanocrystalline

- Liquid Junction", *Journal of Physical Chemistry B* , Vol.112, pp 17778-17787.
- Hodes, G., (2012), "Photoelectrochemical Cell Measurements: Getting the Basics Right", *Journal of Physical Chemistry Letters* , Vol.3, No.9, pp 1208-1213.
- Hossain, A., Jennings, J.R., Koh, Z.Y. and Wang, Q., (2011), "Carrier Generation and Collection in CdS/CdSe-Sensitized SnO₂ Solar Cells Exhibiting Unprecedented Photocurrent Densities", *ACS Nano* , Vol.5, No.4, pp 3172-3181.
- Hou, J., Zhao, H., Huang, F., Jing, Q., Cao, H., Wu, Q., Peng, S., Cao, G., (2016), "High Performance of Mn-Doped CdSe Quantum Dot Sensitized Solar Cells Based on the Vertical ZnO Nanorod Arrays", *Journal of Power Sources* , Vol.325, pp 438-445.
- Huang, Z., Zou, X. and Zhou, H., (2013), "A Strategy to Achieve Superior Photocurrent by Cu-Doped Quantum Dot Sensitized Solar Cells", *Materials Letters* , Vol.95, No.3, pp 139-141.
- Hubbard, C.R. and Snyder, R.L., (1988), "RIR -Measurement and Use in Quantitative XRD", *Powder Diffraction* , Vol.3, No.2, pp 74-77.
- Jayawardena, K.D.G.I., Rozanski, L.J., Mills, C.A., Beliatis, M.J., Nismy, N.A. and Silva, S.R.P., (2013), "Inorganics-in-Organics': Recent Developments and Outlook for 4G Polymer Solar Cells", *Nanoscale* , Vol.5, No.18, pp 8411.
- Jean, J., Chang, S., Brown, P.R., Cheng, J.J., Rekemeyer, P.H., Bawendi, M.G., ... Bulović, V., (2013), "ZnO Nanowire Arrays for Enhanced Photocurrent in PbS Quantum Dot Solar Cells", *Advanced Materials* , Vol.25, No.20, pp 2790-2796.
- Jiao, S., Shen, Q., Mora-Sero, I., Wang, J., Pan, Z., Zhao, K., ... Bisquert, J., (2015), "Band Engineering in Core / Shell ZnTe / CdSe for Photovoltage and Efficiency Enhancement in Exciplex", *ACS Nano* , Vol.9, No.1, pp 908-915.
- Jiao, S., Shen, Q., Mora-Seró, I., Wang, J., Pan, Z., Zhao, K., ... Bisquert, J., (2015), "Band Engineering in Core/shell ZnTe/cdse for Photovoltage and Efficiency Enhancement in Exciplex Quantum Dot Sensitized Solar Cells", *ACS Nano* , Vol.9, No.1, pp 908-915.
- Jose, R., Thavasi, V. and Ramakrishna, S., (2009), "Metal Oxides for Dye-Sensitized Solar Cells", *Journal of the American Ceramic Society* , Vol.92, No.2, pp 289-301.
- Kamat, P. V., (2008), "Quantum Dot Solar Cells. Semiconductor Nanocrystals as Light Harvesters", *Journal of Physical Chemistry C* , Vol.112, No.48, pp 18737-18753.
- Kato, T., Handa, A., Yagioka, T., Matsuura, T., Yamamoto, K. and Higashi, S., (2017), "Enhanced Efficiency of Cd-Free Cu (In , Ga)(Se , S)₂ Minimodule Via (Zn , Mg) O Second Buffer Layer and Alkali Metal Post-Treatment", *IEEE Journal of Photovoltaics* , Vol.7, No.6, pp 1173-1180.
- Kayes, B.M., Nie, H., Twist, R., Spruytte, S.G., Reinhardt, F., Kizilyalli, I.C. and Higashi, G.S., (2011), "27.6% Conversion Efficiency, a New Record for Single-Junction Solar Cells under 1 Sun Illumination", *Conference Record of the IEEE Photovoltaic Specialists Conference* pp 000004-000008.
- Kern, R., Sastrawan, R., Ferber, J., Stangl, R. and Luther, J., (2002), "Modeling and Interpretation of Electrical Impedance Spectra of Dye Solar Cells Operated under Open-Circuit Conditions", *Electrochimica Acta* , Vol.47, No.26, pp 4213-4225.
- Klimov, V.I., (2006), "Detailed-Balance Power Conversion Limits of Nanocrystal-Quantum-Dot Solar Cells in the Presence of Carrier Multiplication", *Applied Physics Letters* , Vol.89, No.12, pp 123118.
- Klimov, V.I., Mikhailovsky, A.A., McBranch, D.W., Leatherdale, C.A. and Bawendi, M.G., (2000), "Mechanisms for Intraband Energy Relaxation in Semiconductor Quantum Dots: The Role of Electron-Hole Interactions", *Physical Review B* , Vol.61, No.20, pp R13349-R13352.
- Kolodinski, S., Werner, J.H., Wittchen, T., Queisser, H.J., Werner, J.H. and Queisser, H.J., (1993), "Quantum Efficiencies Exceeding Unity due to Impact Ionization in Silicon Solar Cells", *Journal of Applied Physics* , Vol.63, No.17, pp 2405-2407.
- Lai, Y., Lin, Z., Zheng, D., Chi, L., Du, R. and Lin, C., (2012), "CdSe/CdS Quantum Dots Co-Sensitized TiO₂ Nanotube Array Photoelectrode for Highly Efficient Solar Cells", *Electrochimica Acta* , Vol.79, pp 175-181.

- Lan, Z., Liu, L., Huang, M., Wu, J. and Lin, J., (2015), "Preparation of Nano-Flower-like SnO₂ Particles and Their Applications in Efficient CdS Quantum Dots Sensitized Solar Cells", *Journal of Materials Science: Materials in Electronics* , Vol.26, No.10, pp 7914-7920.
- Landsberg, P.T., Nussbaumer, H. and Willeke, G., (1993), "Band-Band Impact Ionization and Solar Cell Efficiency", *Journal of Applied Physics* , Vol.74, No.2, pp 1451-1452.
- Lee, H., Wang, M., Chen, P., Gamelin, D.R., Zakeeruddin, S.M. and Gra, M., (2009), "Efficient CdSe Quantum Dot-Sensitized Solar Cells Prepared by an Improved Successive Ionic Layer Adsorption and Reaction Process", *Nano Letters* , Vol.9, No.12, pp 4221-4227.
- Lee, Y.L. and Lo, Y.S., (2009), "Highly Efficient Quantum-Dot-Sensitized Solar Cell Based on Co-Sensitization of CdS/CdSe", *Advanced Functional Materials* , Vol.19, No.4, pp 604-609.
- Li, C., Bando, Y., Nakamura, M., Kimizuka, N. and Kito, H., (2000), "Precipitate within the Spinel-Type Zn₂TiO₄ Matrix Studied by High-Resolution Analytical Transmission Electron Microscopy", *Materials Research Bulletin* , Vol.35, No.3, pp 351-358.
- Li, Y., Pang, A., Zheng, X. and Wei, M., (2011), "CdS Quantum-Dot-Sensitized Zn₂SnO₄ Solar Cell", *Electrochimica Acta* , Vol.56, No.13, pp 4902-4906.
- Li, L. Bin, Wang, Y.F., Rao, H.S., Wu, W.Q., Li, K.N., Su, C.Y. and Kuang, D. Bin, (2013), "Hierarchical Macroporous Zn₂SnO₄-ZnO Nanorod Composite Photoelectrodes for Efficient CdS/cdse Quantum Dot Co-Sensitized Solar Cells", *ACS Applied Materials and Interfaces* , Vol.5, No.22, pp 11865-11871.
- Liang, Y., Xu, Z., Xia, J., Tsai, S.T., Wu, Y., Li, G., Ray, C., Yu, L., (2010), "For the Bright Future-Bulk Heterojunction Polymer Solar Cells with Power Conversion Efficiency of 7.4%", *Advanced Materials* , Vol.22, No.20, pp 135-138.
- Luo, J., Wei, H., Huang, Q., Hu, X., Zhao, H., Yu, R., Li, D., Luo, Y., Meng, Q., (2013), "Highly Efficient Core-Shell CuInS₂-Mn Doped CdS Quantum Dot Sensitized Solar Cells.", *Chemical communications (Cambridge, England)* , Vol.49, No.37, pp 3881-3.
- Makarov, N.S., McDaniel, H., Fuke, N., Robel, I. and Klimov, V.I., (2014), "Photocharging Artifacts in Measurements of Electron Transfer in Quantum-Dot-Sensitized Mesoporous Titania Films", *Journal of Physical Chemistry Letters* , Vol.5, No.1, pp 111-118.
- Mathew, S., Yella, A., Gao, P., Humphry-Baker, R., Curchod, B.F.E., Ashari-Astani, N., Tavernelli, I., Rothlisberger, U., Nazeeruddin, Md.K., Grätzel, M., (2014), "Dye-Sensitized Solar Cells with 13% Efficiency Achieved through the Molecular Engineering of Porphyrin Sensitizers", *Nature Chemistry* , Vol.6, No.3, pp 242-247.
- Matsui, T., Maejima, K., Bidiville, A., Sai, H., Koida, T. and Suezaki, T., (2015), "High-Efficiency Thin-Film Silicon Solar Cells Realized by Integrating Stable a-Si: H Absorbers into Improved Device Design High-Ef Fi Ciency Thin- Fi Lm Silicon Solar Cells Realized by Integrating Stable a-Si: H Absorbers into Improved Device Design", *Japanese Journal of Applied Physics* , Vol.54, pp 08KB10.
- Meng, K., Surolia, P.K. and Thampi, K.R., (2014), "BaTiO₃ Photoelectrodes for CdS Quantum Dot Sensitized Solar Cells", *Journal of Materials Chemistry A* , Vol.2, No.26, pp 10231.
- Monshi, A., Foroughi, M.R. and Monsi, M.R., (2012), "Modified Scherrer Equation to Estimate More Accurately Nano-Crystallite Size Using XRD", *World Journal of Nano Science and Engineering* , Vol.2, No.3, pp 154-160.
- Mora-Seró, I., Giménez, S., Fabregat-Santiago, F., Gómez, R., Shen, Q., Toyoda, T. and Bisquert, J., (2009), "Recombination in Quantum Dot Sensitized Solar Cells", *Accounts of Chemical Research* , Vol.42, No.11, pp 1848-1857.
- Mori, S., Oh-oka, H., Nakao, H., Gotanda, T., Nakano, Y., Jung, H., Lida, A., Hayase, R., Shida, N., Saito, M., Todor, K., Asakura, T., Matsui, A., Hosoya, M., (2015), "Organic Photovoltaic Module Development with Inverted Device Structure", *MRS Proceedings* , Vol.1737, pp mrsf14-1737-u17-02.
- Nieuwenhuys, B.E., Van Aardenne, O.G. and Sachtler, W.M.H., (1974), "Adsorption of Xenon on Group VIII and Ib Metals Studied by Photoelectric Work Function Measurements", *Chemical Physics* , Vol.5, No.3, pp 418-428.
- Nozik, A.J., (2001), "Spectroscopy and Hot Electron Relaxation Dynamics in S Emiconductor

- Quantum Wells and Quantum Dots", *Annu. Rev. Phys. Chem.*, Vol.52, pp 193–231.
- Ogermann, D., Wilke, T. and Kleinermanns, K., (2012), "CdS_xSe_y/TiO₂ Solar Cell Prepared with Sintered Mixture Deposition", *Journal of Physical Chemistry*, Vol.2, No. February, pp 47–57.
- Pan, Z., Zhao, K., Wang, J., Zhang, H., Feng, Y. and Zhong, X., (2013), "Near Infrared Absorption of CdSe_xTe_{1-x} Alloyed Quantum Dot Sensitized Solar Cells with More than 6% Efficiency and High Stability", *ACS Nano*, Vol.7, No.6, pp 5215–5222.
- Pejova, B. and Grozdanov, I., (2005), "Three-Dimensional Confinement Effects in Semiconducting Zinc Selenide Quantum Dots Deposited in Thin-Film Form", *Materials Chemistry and Physics*, Vol.90, No.1, pp 35–46.
- Pernik, D.R., Tvrđy, K., Radich, J.G. and Kamat, P. V., (2011), "Tracking the Adsorption and Electron Injection Rates of CdSe Quantum Dots on TiO₂: Linked versus Direct Attachment", *Journal of Physical Chemistry C*, Vol.115, No.27, pp 13511–13519.
- Powell, R.C. and Soos, Z.G., (1975), "Singlet Exciton Energy Transfer in Organic Solids", *Journal of Luminescence*, Vol.11, No.1–2, pp 1–45.
- Qian, J., Liu, Q.-S., Li, G., Jiang, K.-J., Yang, L.-M. and Song, Y., (2011), "P3HT as Hole Transport Material and Assistant Light Absorber in CdS Quantum Dots-Sensitized Solid-State Solar Cells.", *Chemical communications (Cambridge, England)*, Vol.47, No.22, pp 6461–6463.
- Radisch, J.G., Dwyer, R. and Kamat, P. V., (2011), "Cu₂S Reduced Graphene Oxide Composite for High-Efficiency Quantum Dot Solar Cells. Overcoming the Redox Limitations of S²⁻/Sn²⁻ at the Counter Electrode", *Journal of Physical Chemistry Letters*, Vol.2, pp 2453–2460.
- Raman, P., Murali, J., Sakthivadivel, D. and Vigneswaran, V.S., (2012), "Opportunities and Challenges in Setting up Solar Photo Voltaic Based Micro Grids for Electrification in Rural Areas of India", *Renewable and Sustainable Energy Reviews*, Vol.16, No.5, pp 3320–3325.
- Reddy, K.G., Deepak, T.G., Anjusree, G.S., Thomas, S., Vadukumpully, S., Subramanian, K.R. V., Nair, S.V., Nair, A.S., (2014), "On Global Energy Scenario, Dye-Sensitized Solar Cells and the Promise of Nanotechnology", *Physical Chemistry Chemical Physics*, Vol.16, No.15, pp 6838.
- Redfield, D., (1980), "Unified Model of Fundamental Limitations on the Performance of Silicon Solar Cells", *IEEE Transactions on Electron Devices*, Vol.27, No.4, pp 766–771.
- Ren, Z., Wang, J., Pan, Z., Zhao, K., Zhang, H., Li, Y., Zhao, Y., Mora-Sero, I., Bisquert, J., Zhong, X., (2015), "Amorphous TiO₂ Buffer Layer Boosts Efficiency of Quantum Dot Sensitized Solar Cells to over 9%", *Chemistry of Materials*, Vol.27, No.24, pp 8398–8405.
- REN21, (2017), *Renewables 2017: global status report*, Paris: REN21 Secretariat.
- Rose, A., (1960), "Photovoltaic Effect Derived from the Carnot Cycle", *Journal of Applied Physics*, Vol.31, No.9, pp 1640–1641.
- Sai, H., Maejima, K., Matsui, T., Koida, T., Matsubara, K., Kondo, M., Takeuchi, Y., Sugiyama, S., Katayama, H., Yoshida, I., (2015), "Effect of Front TCO Layer on Properties of Substrate-Type Thin-Film Microcrystalline Silicon Solar Cells", *IEEE Journal of Photovoltaics*, Vol.5, No.6, pp 1528–1533.
- Salant, A., Shalom, M., Hod, I., Faust, A., Zaband, A. and Banin, U., (2010), "Quantum Dot Sensitized Solar Cells with Improved Efficiency Prepared Using Electrophoretic Deposition", *ACS Nano*, Vol.4, No.10, pp 5962–5968.
- Santra, P.K. and Kamat, P. V., (2012), "Mn-Doped Quantum Dot Sensitized Solar Cells: A Strategy to Boost Efficiency over 5%", *Journal of the American Chemical Society*, Vol.134, No.5, pp 2508–2511.
- Sato, N., (1998), "Electrochemistry at Metal and Semiconductor Electrodes", (E. SCIENCE, ed.) (First.), Sapporo: Antony Rowe Ltd. Eastbourne.
- Schaller, R.D. and Klimov, V.I., (2004), "High Efficiency Carrier Multiplication in PbSe Nanocrystals: Implications for Solar Energy Conversion", *Physical Review Letters*, Vol.92, No.18, pp 186601–1.
- Schaller, R.D., Sykora, M., Pietryga, J.M. and Klimov, V.I., (2006), "Seven Excitons at a Cost of One: Redefining the Limits for Conversion Efficiency of Photons into Charge Carriers", *Nano Letters*, Vol.6, No.3, pp 424–429.

- Shen, T., Tian, J., Lv, L., Fei, C., Wang, Y., Pullerits, T. and Cao, G., (2016), "Investigation of the Role of Mn Dopant in CdS Quantum Dot Sensitized Solar Cell", *Electrochimica Acta* , Vol.191, pp 62–69.
- Shen, X., Jia, J., Lin, Y. and Zhou, X., (2015), "Enhanced Performance of CdTe Quantum Dot Sensitized Solar Cell via Anion Exchanges", *Journal of Power Sources* , Vol.277, pp 215–221.
- Shockley, W. and Queisser, H.J., (1961), "Detailed Balance Limit of Efficiency of P-N Junction Solar Cells", *Journal of Applied Physics* , Vol.32, No.3, pp 510–519.
- Singh, N., Salam, Z., Subasri, A., Sivasankar, N. and Subramania, A., (2018), "Development of Porous TiO₂ nanofibers by Solvasonication Process for High Performance Quantum Dot Sensitized Solar Cell", *Solar Energy Materials and Solar Cells* , Vol.179, No. February, pp 417–426.
- Solanki, C.S., (2013), "Solar Photovoltaic Fundamentals, Technologies and Applications" (2nd ed.), PHI Learning Private Limited, Delhi, India.
- Sun, K., Yan, C., Liu, F., Huang, J., Zhou, F., Stride, J.A., Green, M., Hao, X., (2016), "Over 9% Efficient Kesterite Cu₂ZnSnS₄ Solar Cell Fabricated by Using Zn_{1-x}Cd_xS Buffer Layer", *Advanced Energy Materials* , Vol.6, No.12, pp 4–9.
- Szemjonov, A., Ithurria, S., Dubertret, B., Ciofini, I., Labat, F. and Pauporté, T., (2016), "Ex Situ and in Situ Sensitized Quantum Dot Solar Cells", *Physica Status Solidi (B)* , Vol.254, No.2, pp 1–7.
- Tachan, Z., Rühle, S. and Zaban, A., (2010), "Dye-Sensitized Solar Tubes: A New Solar Cell Design for Efficient Current Collection and Improved Cell Sealing", *Solar Energy Materials and Solar Cells*.
- Tachan, Z., Shalom, M., Hod, I., Rühle, S., Tirosh, S. and Zaban, A., (2011), "PbS as a Highly Catalytic Counter Electrode for Polysulfide Based Quantum Dot Solar Cells" pp 6162–6166.
- Tachibana, Y., Umekita, K., Otsuka, Y. and Kuwabata, S., (2008), "Performance Improvement of CdS Quantum Dots Sensitized TiO₂ Solar Cells by Introducing a Dense TiO₂ Blocking Layer", *Journal of Physics D: Applied Physics* , Vol.41, No.10, pp 102002.
- Taguchi, M., Yano, A., Tohoda, S., Matsuyama, K., Nakamura, Y., Nishiwaki, T., Fujita, K., Maruyama, E., (2014), "24.7% Record Efficiency HIT Solar Cell on Thin Silicon Wafer", *IEEE Journal of Photovoltaics* , Vol.4, No.1, pp 96–99.
- Thirugnanasambandam, M., Iniyar, S. and Goic, R., (2010), "A Review of Solar Thermal Technologies", *Renewable and Sustainable Energy Reviews* , Vol.14, No.1, pp 312–322.
- Tian, J. and Cao, G., (2013), "Semiconductor Quantum Dot-Sensitized Solar Cells.", *Nano reviews* , Vol.4, pp 1–8.
- Tian, J., Lv, L., Fei, C., Wang, Y., Liu, X. and Cao, G., (2014), "A Highly Efficient Cd_{1-x}Mn_xSe Quantum Dot Sensitized Solar Cell", *J. Mater. Chem. A* , Vol.2, No.46, pp 19653–19659.
- Tian, J., Uchaker, E., Zhang, Q. and Cao, G., (2014), "Hierarchically Structured ZnO Nanorods-Nanosheets for Improved Quantum-Dot-Sensitized Solar Cells", *ACS Applied Materials and Interfaces* , Vol.6, No.6, pp 4466–4472.
- Tian, J., Zhang, Q., Uchaker, E., Gao, R., Qu, X., Zhang, S. and Cao, G., (2013), "Architected ZnO Photoelectrode for High Efficiency Quantum Dot Sensitized Solar Cells", *Energy & Environmental Science* , Vol.6, No.12, pp 3542.
- Viet, A. Le, Jose, R., Reddy, M. V., Chowdari, B.V.R. and Ramakrishna, S., (2010), "Nb₂O₅ Photoelectrodes for Dye-Sensitized Solar Cells: Choice of the Polymorph", *J. Phys. Chem. C* , Vol.114, No.49, pp 21795–21800.
- Vogel, R., Pohl, K. and Weller, H., (1990), "Sensitization of Highly Porous, Polycrystalline TiO₂ Electrodes by Quantum Sized CdS", *Chemical Physics Letters* , Vol.174, No.3–4, pp 241–246.
- Wakisaka, K., Taguchi, M., Sawada, T., Tanaka, M., Matsuyama, T., Matsuoka, T., Tsuda, S., Nakano, S., Kishi, Y., Kuwano, Y., (1991), "More than 16% Solar Cells with a New 'HIT' (Doped a-Si/nondoped a-Si/crystalline Si) Structure", *Proceedings of the 22th IEEE Photovoltaic Specialists Conference, Las Vegas, NV, Oct 7-11, 1991* pp 887–892.
- Wang, J., Mora-Seró, I., Pan, Z., Zhao, K., Zhang, H., Feng, Y., Yang, G., Zhong, X., Bisquert, J.,

- (2013), "Core/Shell Colloidal Quantum Dot Exciplex States for the Development of Highly Efficient Quantum-Dot-Sensitized Solar Cells", *J. Am. Chem. Soc.*, Vol.135, No.42, pp 15913–15922.
- Weller, H., (1991), "Quantum Sized Semiconductor Particles in Solution and in Modified Layers", *Berichte der Bunsengesellschaft für physikalische Chemie*, Vol.95, No.11, pp 1361–1365.
- Williams, R., (1960), "Becquerel Photovoltaic Effect in Binary Compounds", *The Journal of Chemical Physics*, Vol.32, No.5, pp 1505–1514.
- Wu, J.C., Zheng, J., Wu, P. and Xu, R., (2011), "Study of Native Defects and Transition-Metal (Mn, Fe, Co, and Ni) Doping in a Zinc-Blende CdS Photocatalyst by DFT and Hybrid DFT Calculations", *Journal of Physical Chemistry C*, Vol.115, No.13, pp 5675–5682.
- Yamaguchi, O., Morimi, M., Kawabata, H. and Shimizu, K., (1987), "Formation and Transformation of ZnTiO₃", *Journal of the American Ceramic Society*, Vol.70, No.5, pp C-97-C-98.
- Yang, W.S., Noh, J.H., Jeon, N.J., Kim, Y.C., Ryu, S., Seo, J. and Seok, S. Il, (2015), "High-Performance Photovoltaic Perovskite Layers Fabricated through Intramolecular Exchange", *Science*, Vol.348, No.6240, pp 1234–1237.
- Yeh, M.H., Lee, C.P., Chou, C.Y., Lin, L.Y., Wei, H.Y., Chu, C.W., Vittal, R., Ho, K.C., (2011), "Conducting Polymer-Based Counter Electrode for a Quantum-Dot-Sensitized Solar Cell (QDSSC) with a Polysulfide Electrolyte", *Electrochimica Acta*, Vol.57, No.1, pp 277–284.
- Yoshikawa, K., Kawasaki, H., Yoshida, W., Irie, T., Konishi, K., Nakano, K., Uto, T., Adachi, D., Kanematsu, M., Uzu, H., Yamamoto, K., (2017), "Silicon Heterojunction Solar Cell with Interdigitated Back Contacts for a Photoconversion Efficiency over 26%", *Nature Energy*, Vol.2, No.5.
- Yu, J., Li, D., Zhu, L. and Xu, X., (2016), "Application of ZnTiO₃ in Quantum-Dot-Sensitized Solar Cells and Numerical Simulations Using First-Principles Theory", *Journal of Alloys and Compounds*, Vol.681, pp 88–95.
- Yu, L., Li, Z. and Song, H., (2017), "The Influence of Linker Molecule on Photovoltaic Performance of CdS Quantum Dots Sensitized Translucent TiO₂ nanotube Solar Cells", *Journal of Materials Science: Materials in Electronics*, Vol.28, No.3, pp 2867–2876.
- Yu, X.Y., Liao, J.Y., Qiu, K.Q., Kuang, D. Bin and Su, C.Y., (2011), "Dynamic Study of Highly Efficient CdS/CdSe Quantum Dot-Sensitized Solar Cells Fabricated by Electrodeposition", *ACS Nano*, Vol.5, No.12, pp 9494–9500.
- Zaban, a, Micic, O., Gregg, B. a and Nozik, a J., (1998), "Photosensitization of Nanoporous TiO₂ Electrodes with InP Quantum Dots", *Langmuir*, Vol.14, No.11, pp 3153–3156.
- Zhang, H., Cheng, K., Hou, Y.M., Fang, Z., Pan, Z.X., Wu, W.J., Hua, J.L., Zhong, X.H., (2012), "Efficient CdSe Quantum Dot-Sensitized Solar Cells Prepared by a Postsynthesis Assembly Approach", *Chemical Communications*, Vol.48, No.91, pp 11235.
- Zhang, Z., Shi, C., Lv, K., Ma, C., Xiao, G. and Ni, L., (2017), "200-nm Long TiO₂ Nanorod Arrays for Efficient Solid-State PbS Quantum Dot-Sensitized Solar Cells", *Journal of Energy Chemistry*.
- Zhao, K., Pan, Z., Mora-Seró, I., Cánovas, E., Wang, H., Song, Y., Gong, X., Wang, J., Bonn, M., Bisquert, J., Zhong, X., (2015), "Boosting Power Conversion Efficiencies of Quantum-Dot-Sensitized Solar Cells Beyond 8% by Recombination Control", *Journal of the American Chemical Society* pp 5602–5609.
- Zhou, R., Zhang, Q., Uchaker, E., Yang, L., Yin, N., Chen, Y., Yin, Y., Cao, G., (2014), "Photoanodes with Mesoporous TiO₂ Beads and Nanoparticles for Enhanced Performance of CdS/CdSe Quantum Dot Co-Sensitized Solar Cells", *Electrochimica Acta*, Vol.135, pp 284–292.

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