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| Title | The synthesis and characterization of carbon dots and their application in dye sensitized solar cell | | |
| Author(s) Name | William Ghann, Vinay Sharma, Hyeonggon Kang, Fahim Karim, Balvin Richards, Shaikh M. Mobin , Jamal Uddin, Mohammed M. Rahman, Faruque Hossain, Humayun Kabir, Nizam Uddin | | |
| Contact Email(s) | xray@iiti.ac.in , juddin@coppin.edu | | |
| Published Journal Name | International Journal of Hydrogen Energy | | |
| Type of Publication | Journal | | |
| Volume | 44 | Issue | 29 |
| Publisher | Elsevier | | |
| Publication Date | 7 June, 2019 | | |
| ISSN | 0360-3199 | | |
| DOI | https://doi.org/10.1016/j.ijhydene.2019.04.072 | | |
| URL | https://www.sciencedirect.com/science/article/abs/pii/S0360319919314703?via%3Dihub | | |
| Other Related Info. | Pages 14580-14587 | | |
| **Keywords:** Carbon dots; Dye; DSSC; N719; Photoanode; Solar Cell | | | |
| Citation: Ghann, William & Sharma, Vinay & Kang, Hyeong-Gon & Karim, Fahim & Richards, Balvin & Mobin, Shaikh & Uddin, Jamal & Rahman, Mohammed & Hossain, Md. Faruque & Kabir, Md & Uddin, Md. (2019). The synthesis and characterization of carbon dots and their application in dye sensitized solar cell. International Journal of Hydrogen Energy. 44. 10.1016/j.ijhydene.2019.04.072. | | | |

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| Abstract |  |
| Carbon dots (CDOTs) are increasingly becoming popular in the areas ranging from sensing and bioimaging to electronics. The interesting optical properties of CDOTs make it vital to explore its potential in the development of sustainable energy. In this work, one-step hydrothermally synthesized CDOTs were used as sensitizing agent in the fabrication of dye sensitized solar cell. The fabrication of the CDOT-based dye sensitized solar cell and its performance characteristics are explored in depth. The fabricated dye sensitized solar cell performance in terms of efﬁciency, voltage, and current was evaluated using a standard illumination of air-mass 1.5 global (AM 1.5 G) having an irradiance of 100 mW/cm [2]. The photon-to-current conversion efﬁciency (h) of only the carbon dot sensitized solar cell was0.10% whereas the efﬁciency of the solar cell fabricated with a sensitizing dye made up of CDOT and N719 was 0.19%. As compared with the performance DSSCs fabricated with only719 dye, it was observed that when CDOT was used in combination with N719 as sensitizing dye, the open circuit voltage increases yet the overall efﬁciency of the resulting solar cells decreases. It is clear from the result that CDOT could be used as a sensitizing dye in DSSCs. However, it is not very useful when used in combination with other sensitizing dyes due to energy transfer | |

**Please specify which Sustainable Development Goal (SDG) (s) falls under your research:**

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| Goal 1 | No Poverty | Goal 2 | Zero Hunger |
| Goal 3 | Good Health and Well-Being | Goal 4 | Quality Education |
| Goal 5 | Gender Equality | Goal 6 | Clean Water and Sanitation |
| Goal 7 | Affordable and Clean Energy | **Goal 8** | **Decent Work and Economic Growth** |
| Goal 9 | Industry, Innovation and Infrastructure | Goal 10 | Reduced Inequalities |
| Goal 11 | Sustainable Cities and Communities | Goal 12 | Responsible Consumption and Production |
| Goal 13 | Climate Action | Goal 14 | Life below Water |
| Goal 15 | Life on Land | Goal 16 | Peace, Justice and Strong Institutions |
| Goal 17 | Partnerships for the Goals |  |  |