

Recycling of plastic waste bottles to white light emitting carbon dots

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Covid-19 pandemic has escalated the use of plastic waste across the globe that takes hundreds of years to degrade and finally end up as micro plastics in soil. In this work we report recycling of one time use plastic waste bottles to white light emitting Carbon Dots (CDs) using a pyrolytic method. Plastic waste takes hundreds of years for natural degradation and is a major cause of environmental pollution. We address this issue by recycling plastic waste bottles to CDs. Further the fabricated CDs are characterized using UV-absorption emission spectroscopies. Using our unique recycling technique, broadband single system white light emitting CDs with broad absorption and emission bandwidth of ~ 135 nm are synthesized. These dots have potential to replace semiconductor quantum dots as active emitters in next generation artificial lighting devices.

Biography

Manasa Perikala is a PhD research scholar under Prof. Asha Bhardwaj in the Department of Instrumentation and Applied Physics, Indian Institute of Science, Bangalore, India. She received her Integrated Master's degree in engineering physics from IIT (BHU) Varanasi, India, in 2017. Her research interests include synthesis of nano materials for photonic device applications, designing fiber optic sensors, nano photonics, and nano device fabrication. She has been involved in various research projects that include "Designing Temperature Sensor Using Fiber Bragg Gratings" at IISc Bangalore, "Optical Fiber as Evanescent Wave Chemical Sensor" at IIT Varanasi, "Design and Development of Flow Sensor" at LEOS, ISRO, and "Designing Sewage Disposal System for Indian Railways-Bio-Toilets

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