Multiple Exciton Generation in Nanocrystal Quantum Dots – Controversy, Current Status and Future Prospects

A 'perspective' article that David Binks was invited to write by the editors will appear next month in 'Physical Chemistry Chemical Physics' and is entitled ‘Multiple Exciton Generation in Nanocrystal Quantum Dots – Controversy, Current Status and Future Prospects’. Multiple Exciton Generation (MEG) is an effect in nanocrystals by which a single absorbed photon can produce multiple charges, and has the potential to significantly improve the efficiency of solar cells. The article discusses the controversy that has surrounded MEG in recent years and the improved understanding of experimental data that has emerged recently, which has allowed seemingly contradictory results to be reconciled. The article also examines the current state-of-the-art, the potential impact on solar cell efficiency and proposes a quantum dot structure designed to optimise MEG efficiency.

Cartoon illustrating the MEG process against a background showing the solar spectrum