


Structural and Optical Profiling of DNA-Coupled Alq₃-Systems

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DNA-guided tri(8-hydroxyquinoline) aluminium (Alq₃) microrods which is an organic  conjugated semiconductor were prepared for the first time. To the best of our knowledge, there are no reports on the preparation of Alq₃ microstructures with the aid of biomolecules such as DNAs as well as their optical functions. When hybridized with oligonucleotide labeled by Cy3 fluorescent dye, a significant photoluminescence variation of the Alq₃ microrods was observed due to Förster resonance energy transfer (FRET), unlike when Cy5-oligonucleotide was used. Oligonucleotide-coupled 1-D Alq₃ microrods studied here can be extended to applications as in organic waveguides owing to their excellent crystalline structure and optical properties generating the FRET effect. Versatile nucleotide manipulation would open up wider applications of Alq₃-based materials, based on this fundamental observation.