

Title: Graphene-Based Quantum Dot for Biomedical Applications: Current Scenario and Future Prospects

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Summary of the speech

Graphene quantum dots (GQDs) evolved as an attractive nanomaterial due to their superiority in chemical and many physical properties, biocompatibility and low toxicity. GQDs have attracted extensive attention from scientists in the fields of chemistry, physics, materials science, biology, and other interdisciplinary sciences. They consist of a monolayer or a few layers of graphene having excellent and unique properties. GQDs have already created huge excitement due to quantum confinement. In particular, they constitute discrete characteristics such as acting as attractive fluorophores and excellent electro-catalysts owing to their photo-stability, water-solubility, biocompatibility, non-toxicity behaviour that make them suitable candidates for a wide range of novel biomedical applications.

GQDs-based nanohybrid materials have also gained equivalent attention in medical applications, particularly in biomedical fields due to their enhanced physicochemical properties and outstanding biocompatibility compared to other nanomaterials. Although GQDs are expected to play an important role in many biomedical applications, the low yield of production, size and surface layers need to be modified if efficient applications are to be established. All of these issues need further exploration and hence, we hope further studies can successfully resolve the issues in the near future.