

## Synthesis of solid-state luminescent carbon dots by controlling the degree of crystallinity

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Realization of solid-state luminescent carbon dots (CDs) in pristine state, which possess anti-self-quenching property without any supporting media, is a critical issue for the extension of their applications such as light-emitting-diodes (LED), energy conversion, sensing, and ink-jet printing. Here, we discuss the synthesis strategies to provide anti-self-quenching property to CDs in solid-state. There are mainly two methods to prepare self-quench-resistant CDs in pristine state: carbonization control and charge repulsion. Between them, we will focus on the carbonization control method that regulates the core structure in CDs. The control of the degree of carbonization is important to minimize  $\pi$ - $\pi$  interactions or formation of multiple emissive-states, reducing the amount of quenching origins of CDs. By changing the reaction conditions, it is possible to decrease the sp<sup>2</sup> domain contents and enhance the emission properties of CDs in solid-state. Combined with the improved luminescence properties in solid-state, the advancement in various applications using solid-state luminescent CDs also will be provided.