

## **Electrochemical synthesis of amino acid-derived Chiral Carbon Dots as recyclable heterogeneous nano-organocatalysts**

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Carbon dots (CDs) are “small” carbon nanostructures possessing excellent photoluminescence properties, high biocompatibility, excellent dispersibility in water as well as organic solvents. Due to their characteristics, CDs have been studied for a plethora of applications as biosensors, luminescent probes for photothermal therapy, as well as heterogeneous photo-catalysis. Moreover, the possibility to obtain CDs from biomass waste has strongly promoted the interest in the view of circular economy and sustainable processes. Herein the electrochemical synthesis of chiral CDs (CCDs) is reported. The electrochemical set-up and reaction conditions has been thoroughly optimize and their effects on CDs size, photoluminescence, as well as catalytic activity have been investigated. The obtained CCDs have been employed to catalyse an asymmetric aldol reaction, showing promising results and potential application as recyclable heterogeneous catalytic systems.