

Functionalized carbon nanostructures for materials science applications: opportunities enabled by flow chemistry

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The benefits of flow chemistry in micro/meso-structured reactors are of great interest for the synthetic chemistry community, following the demonstration that in such systems large surface-area-to-volume ratios allow precise reaction control through efficient heat and mass transfer. In this presentation the continuous-flow approach to the functionalization of carbon nanostructures will be reported. With simple flow reactor setups, made of readily available components, we investigated several addition reactions to fullerenes, carbon nanotubes and graphene, and evidenced that the productivities in functionalized materials of the flask synthesis can be achieved in much shorter times in a flow reactor, with the advantage of a better selectivity and quick response when new solvents or functional groups are explored.