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(57) Abstract :

The present invention discloses a Multifunctional Nanomaterials method of photothermally heating a solution and catalyzing a reaction. The method includes the steps, but not limited to, providing, a mixture of a Nanomaterial with a precursor in first solvent, wherein the Nanomaterial comprises a hydrophilic outer coating with heating the aforesaid mixture; and cooling the aforesaid mixture to room temperature and further, modifying the hydrophilic outer coating into a hydrophobic outer coating; precipitating a solid product from the mixture and dispersing the product in second solvent.

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