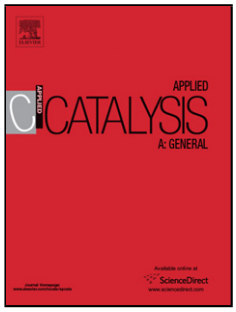

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Fabrication of propylsulfonic acid functionalized SiO_2 core/PMO shell structured $PrSO_3H$-SiO_2@Si(R)Si nanospheres for the effective conversion of D-fructose into ethyl levulinate

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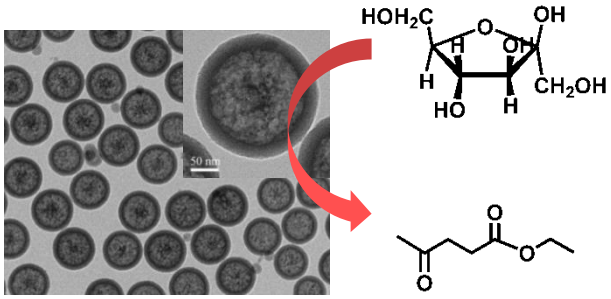
Graphic Abstract



Propylsulfonic acid functionalized SiO_2 core/alkyl- or phenyl-bridged organosilica shell structured $PrSO_3H$-SiO_2@Si(R)Si (R = $–C_2H_4–$, $–C_6H_4–$ or $–C_6H_4–C_6H_4–$) nanospheres exhibit excellent catalytic activity and stability for the ethanolysis of D-fructose to ethyl levulinate.