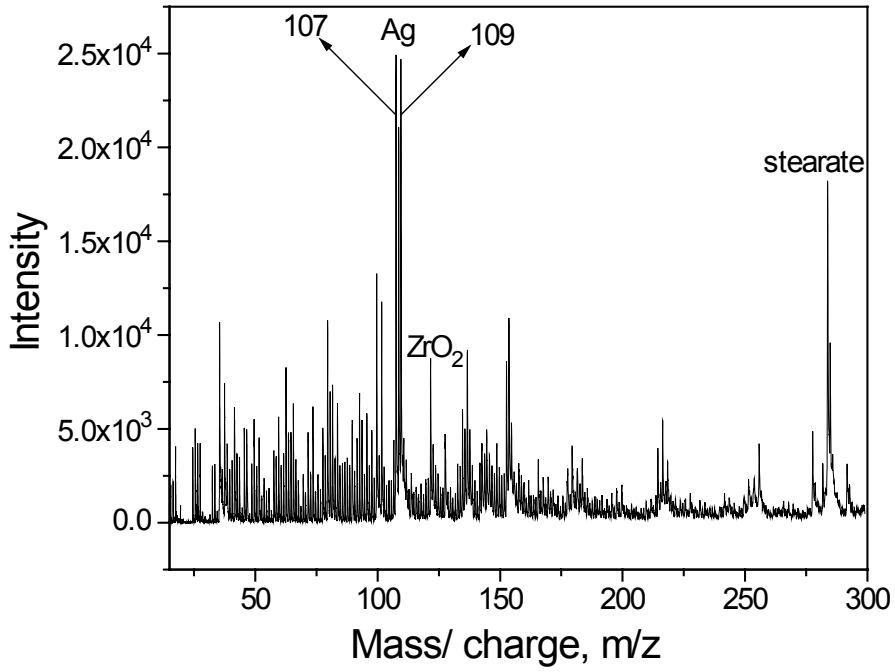
Supporting Information 1



The negative ion laser desorption time of flight mass spectrum of the air-dried powder of Ag@ZrO2@stearate showing characteristic features. The presence of stearate group on the ZrO_2 surface is evidenced by the appearance of a peak at e/m at 283 (stearate). Similarly the presence of the isotopes of silver at e/m 107 and 109 and the presence of ZrO_2 peak at 122 also confirm the chemical nature of the sample. The positive ion spectrum did not show characteristic features for stearate as expected, and no stearic acid (284) peak was observed. The measurement used an Applied Biosystems Voyager DE PRO spectrometer. No matrix was used.

Supporting Information 2

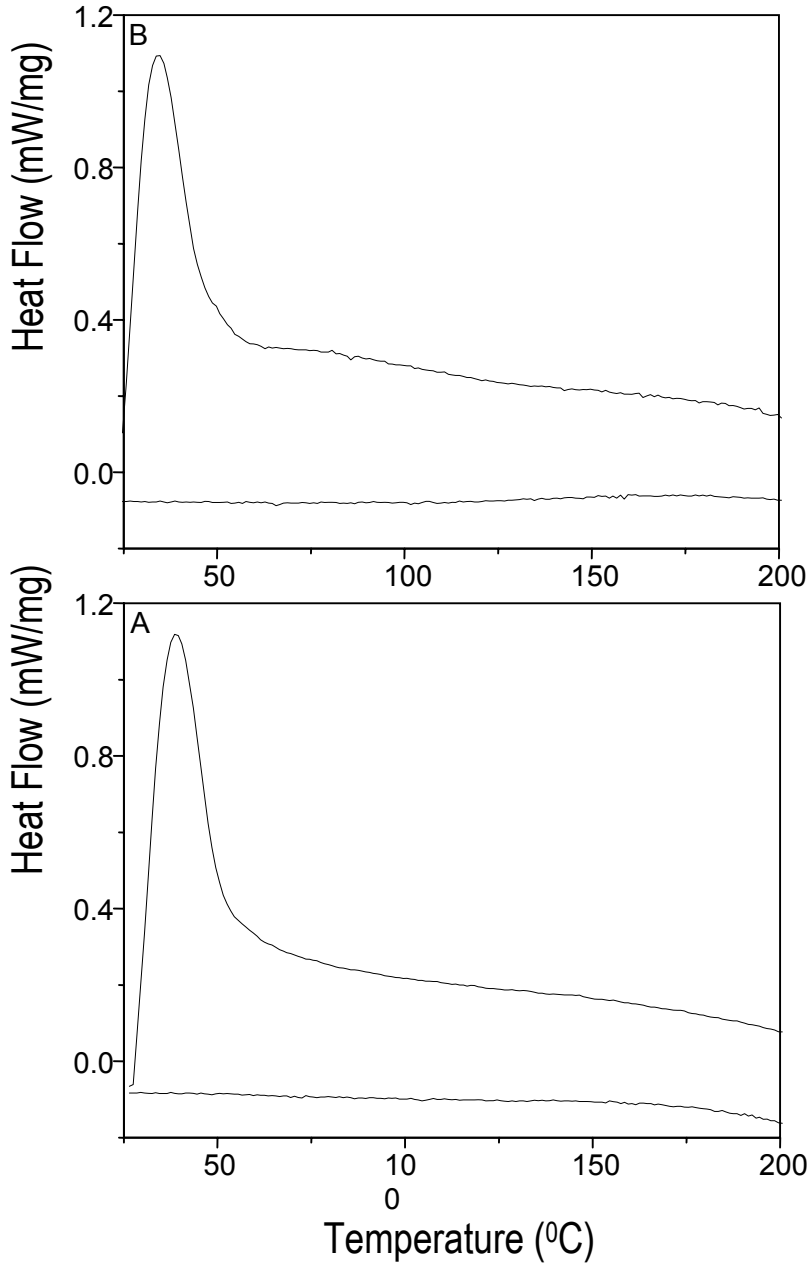


Figure (A) shows the differential scanning calorimetric trace of Au@ZrO_2@stearate. The sample was first heated from 20^0C to 200^0C and then cooled back to 20^0C. The irreversible isotherm occurs at 39^0c with a transition enthalpy of 230 kJ/g. In the case of Ag@ZrO_2@stearate (Figure B) the irreversible isotherm is peaked at 34.7^0C. The transition is attributed to irreversible solvent and hydroxyl group losses, as shown by IR and TG analyses.

Supporting Information 3

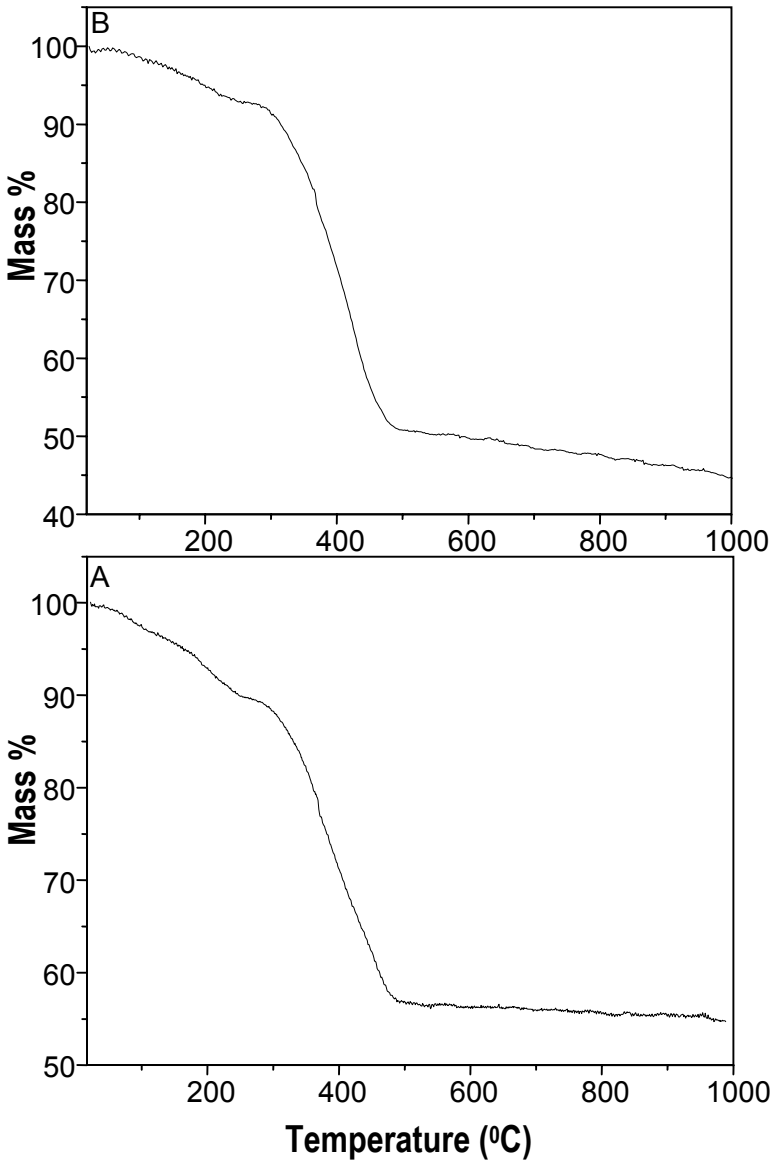


Figure (A) is the thermogravimetric data of Au@ZrO_2@stearate and B that of Ag@ZrO_2@stearate. Thermogravimetry shows weight losses in the temperature range of (43-255^{0}C), and (283-490^{0}C). The weight loss in the range of 43-255^{0}C is attributed to the loss of solvent and hydroxyl groups and the subsequent mass loss in the range 283-490^{0}C is due to the desorption of stearate from the ZrO_2 surface.