Supporting Information

Multifunctional magnetic composite microspheres with \textit{in situ} growth Au nanoparticles: A highly efficient catalyst system

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Figure S1. Diameter distribution of the Au nanoparticles on Fe$_3$O$_4$@SiO$_2$-LBL-Au(0) microspheres (1 layer).

Figure S2. EDX spectra of Fe$_3$O$_4$@SiO$_2$-LBL-Au(0) microspheres (1 layer). Inset is a pie chart showing the element distribution, and the gold content is ca. 1.63 wt%.
Table S1. The relationship between the numbers of the cycles and the rate constant $k$.

<table>
<thead>
<tr>
<th>Cycle</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>$k$</td>
<td>0.184</td>
<td>0.177</td>
<td>0.159</td>
<td>0.125</td>
<td>0.119</td>
<td>0.111</td>
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</tbody>
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