

Supporting Information

Hybrid Au-CuO Nanoparticles: Effect of Structural Features for Selective Benzyl Alcohol Oxidation

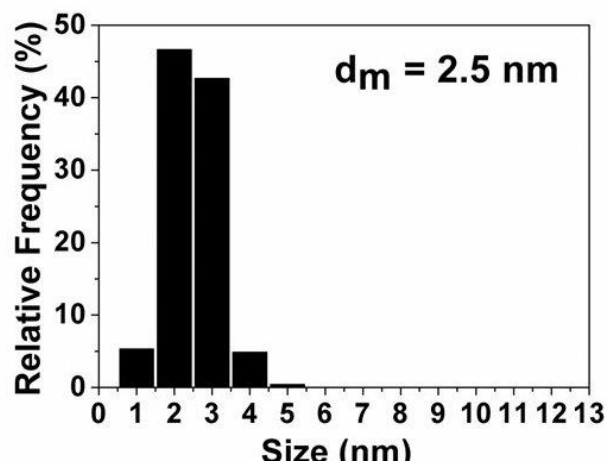
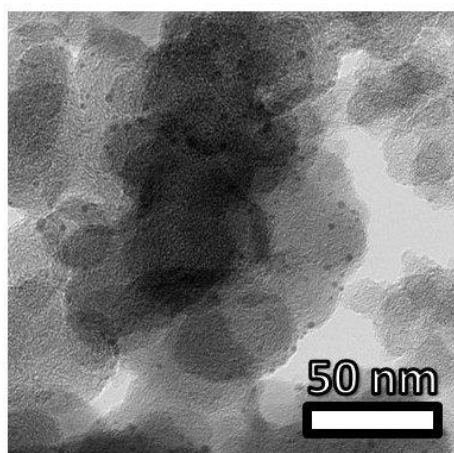
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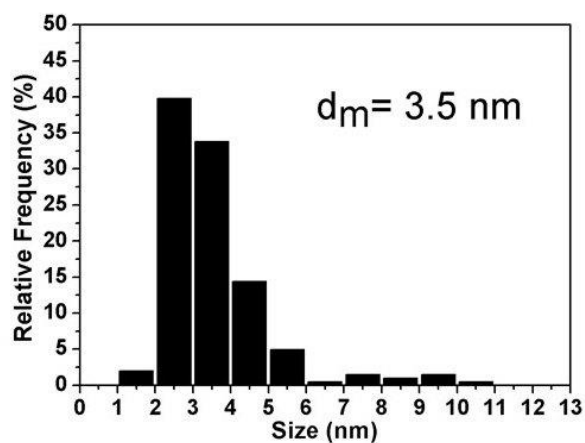
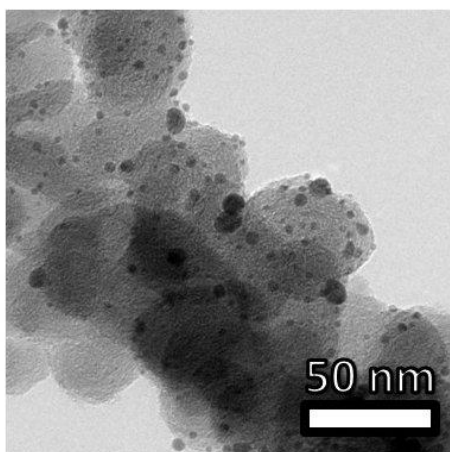
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Au/C



Au₁₃Cu₁/C



Au₄Cu₁/C

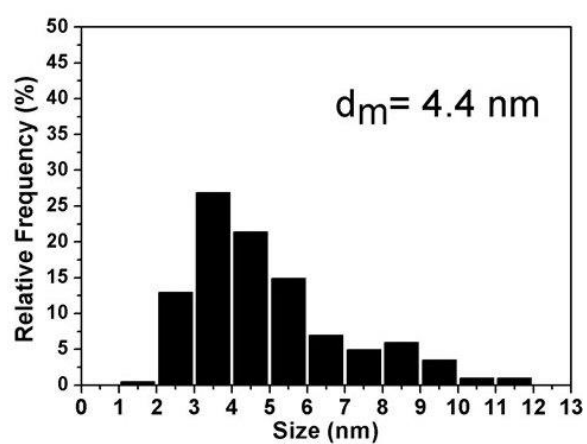
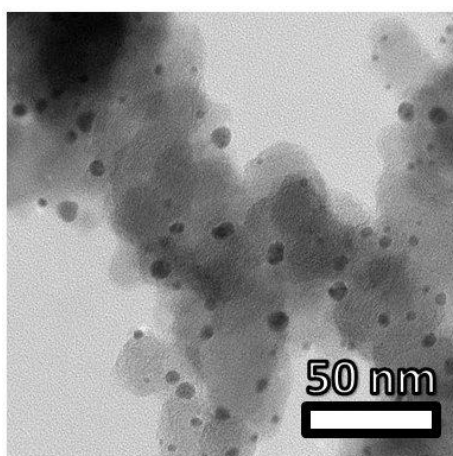
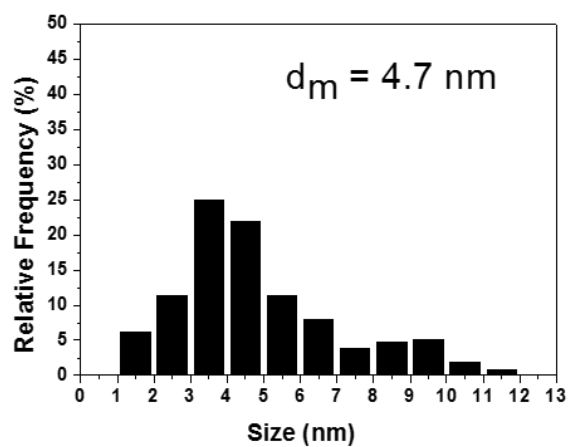
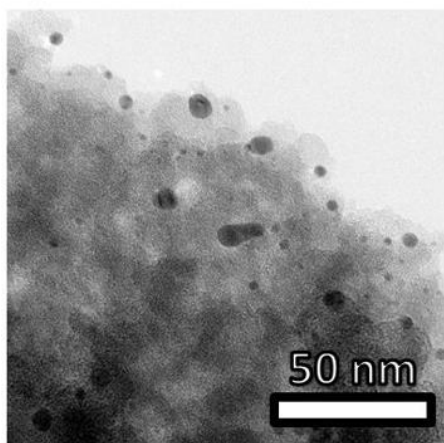
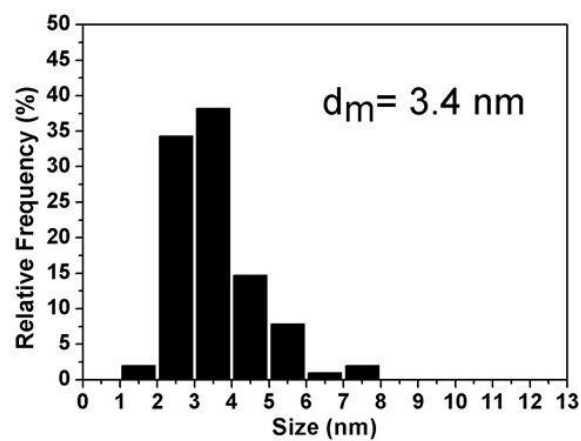
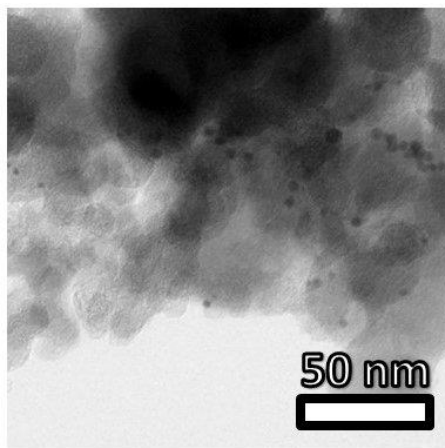


Fig. S1 – Representative TEM micrograph and related size distribution for Au/C (top), Au₁₃Cu₁/C (middle) and Au₄Cu₁/C (bottom).

$\text{Au}_1\text{Cu}_1/\text{C}$



$\text{Au}_1\text{Cu}_{17}/\text{C}$



Cu/C

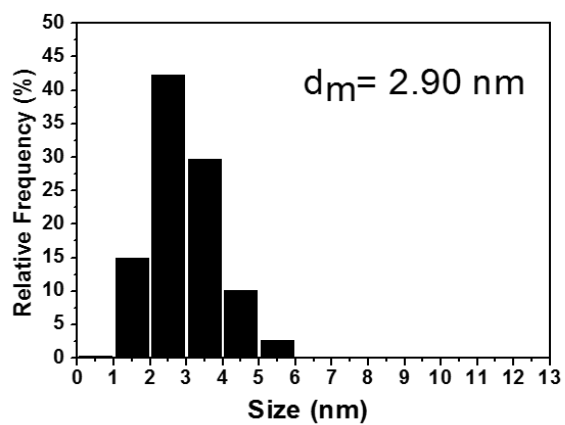
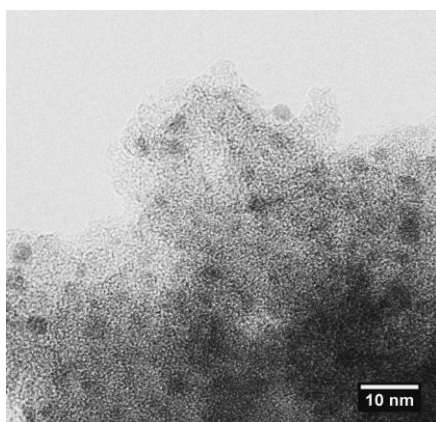


Fig. S2 – Representative TEM micrograph and related size distribution for $\text{Au}_1\text{Cu}_1/\text{C}$ (top), $\text{Au}_1\text{Cu}_{17}/\text{C}$ (middle) and Cu/C (bottom).

$\text{Au}_1\text{Cu}_{17}/\text{C}$

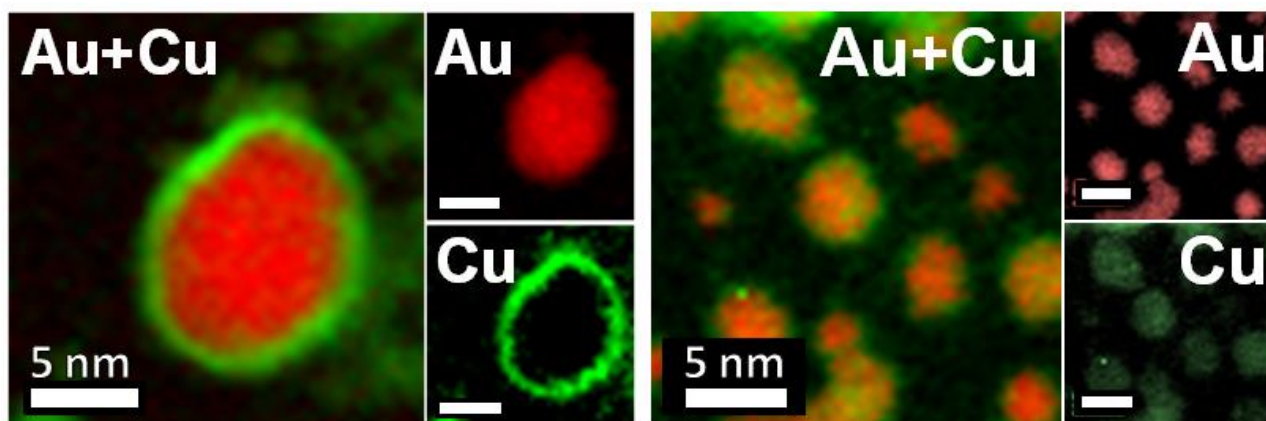


Fig. S3 – Representative STEM-Energy filtered maps for sample $\text{Au}_1\text{Cu}_{17}$
 $\text{Au}@2239.0\text{-}2477.0\text{eV} - \text{Cu}@953.0\text{-}1202.0\text{eV}$

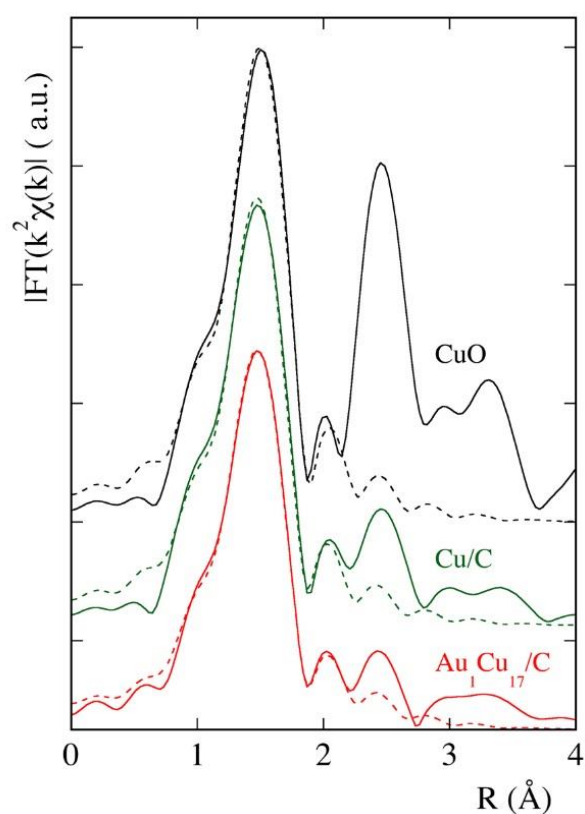


Fig. S4 - Fourier transforms of the experimental (full lines) and theoretical (dashed lines) EXAFS spectra of the $\text{Au}_1\text{Cu}_{17}/\text{C}$ bimetallic sample compared to the one of monometallic Cu/C and of the CuO reference sample ($\Delta k = (2.5 - 11.4) \text{ \AA}^{-1}$).

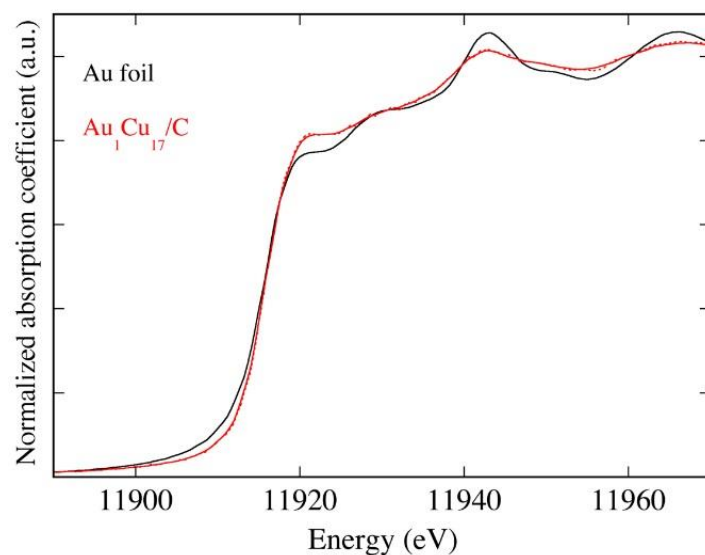


Fig. S5. XANES spectra of the Au foil reference sample and of the bimetallic $\text{Au}_1\text{Cu}_{17}/\text{C}$ catalyst with the lower Au amount (the full line represents the smoothed experimental data).

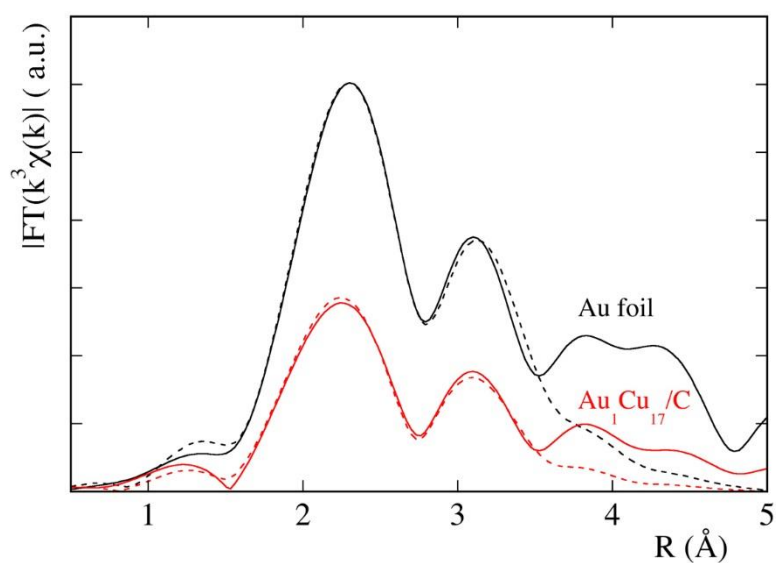


Fig. S6. Fourier transforms of the experimental (full lines) and theoretical (dashed lines) EXAFS spectra of the $\text{Au}_1\text{Cu}_{17}/\text{C}$ bimetallic sample compared to the one of Au foil reference sample ($\Delta k = (2.5 - 8.0) \text{\AA}^{-1}$).

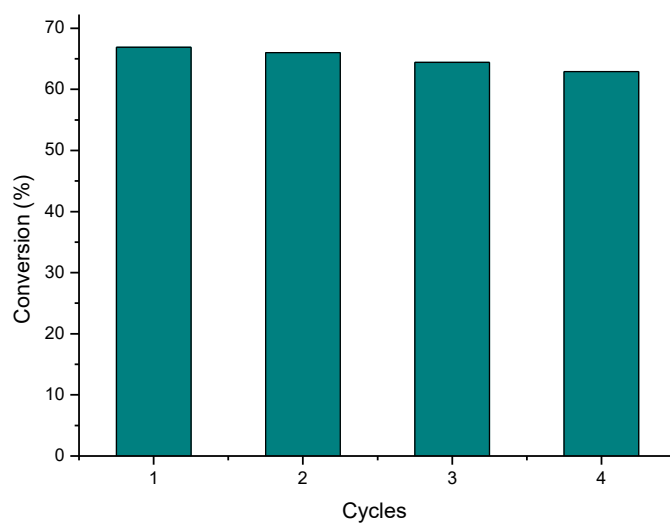


Fig. S7 Stability tests running in 4 reaction cycles of $\text{Au}_4\text{Cu}_1/\text{C}$ (reaction time 2h).

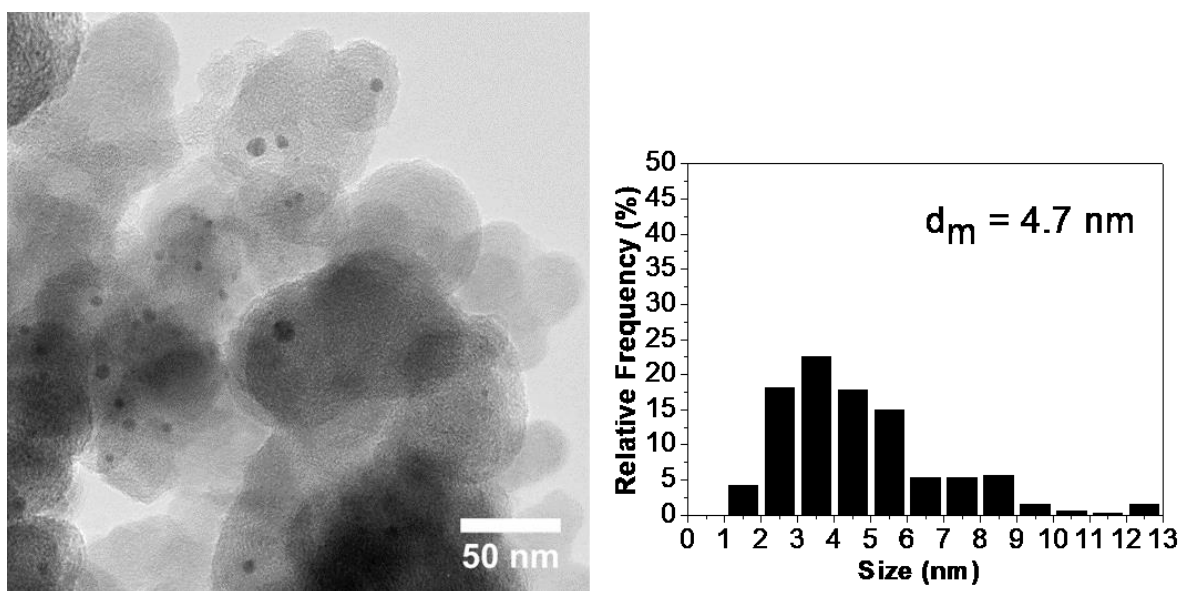


Fig. S8 – Representative TEM micrograph and related size distribution for $\text{Au}_4\text{Cu}_1/\text{C}$ after 4 catalytic cycles.