

Supplementary Information

Synthesis of regular-size CeO₂:

Synthesis of regular-size CeO₂ was performed starting from a solution of 25.0 g of Ce(NO₃)₃ in 200mL of deionised water that was heated at 70 °C, then pH was adjusted to 9 with 25 wt.% ammonia solution and the mixture was allowed to react for 1 h. After that, the solution was filtered off and the recovered solid was dried at 100 °C (overnight) and calcined at 550 °C (6 hs.).

Preparation Au / CeO₂ materials:

Deposition of the Au particles on CeO₂ supports was performed by deposition-precipitation method. Typically, a solution of HAuCl₄·3H₂O (0.6 g) in 70mL of deionised water was brought to pH = 10 by addition a 0.2M NaOH solution. This solution was added to a suspension containing the CeO₂ support (5.7 g) in water (200 mL). After adjusting the pH of the slurry at a value of 10 (with 0.2M NaOH solution), the mixture was vigorous stirred during 16 hs. at room temperature. The Au/CeO₂ solid was then filtered off, exhaustively washed with distilled water and dried at 100 °C (overnight).