The size of Au-nanoparticles supported on Mesostructural Cellular Foams (MCF) studied by Pair Distribution Function (PDF) technique

Agnieszka Poulain[a*]

Izabela Sobczak[b]

Maria Ziolek[b]

[a] European Synchrotron Radiation Facility (ESRF), 71 avenue des Martyrs, CS 40220, Grenoble Cedex 9, France

[b] Faculty of Chemistry, Department of Heterogeneous Catalysis, Umultowska 89b, 61-614 Poznan, Poland

KEYWORDS : Pair Distribution Function, Mesostructural Cellular Foams, gold catalysts, *in situ* calcination, *in-situ* CO oxidation

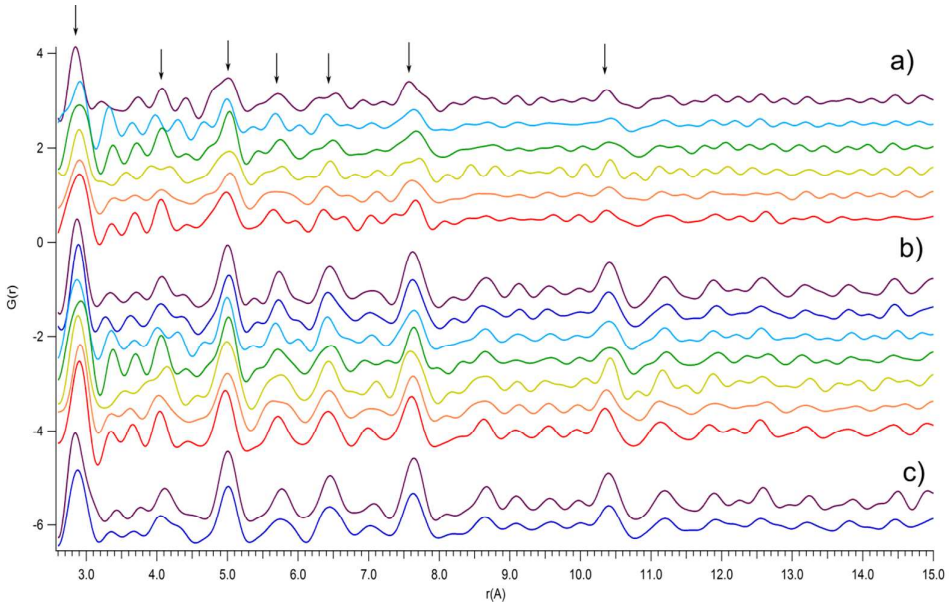
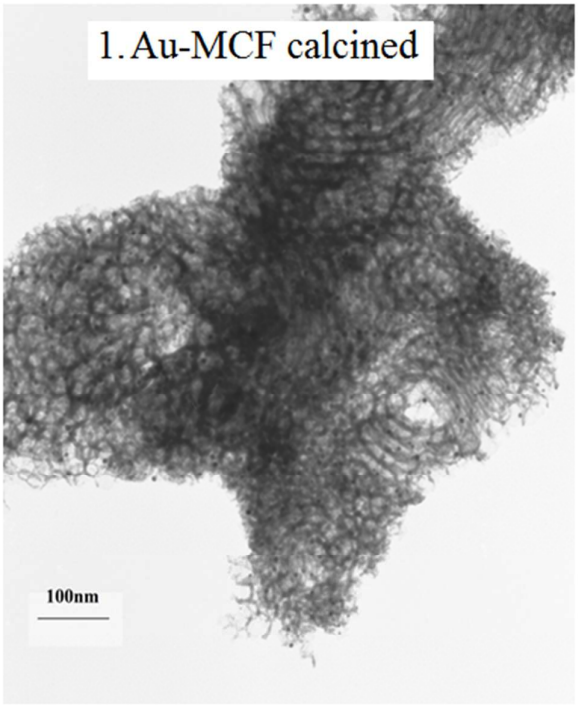
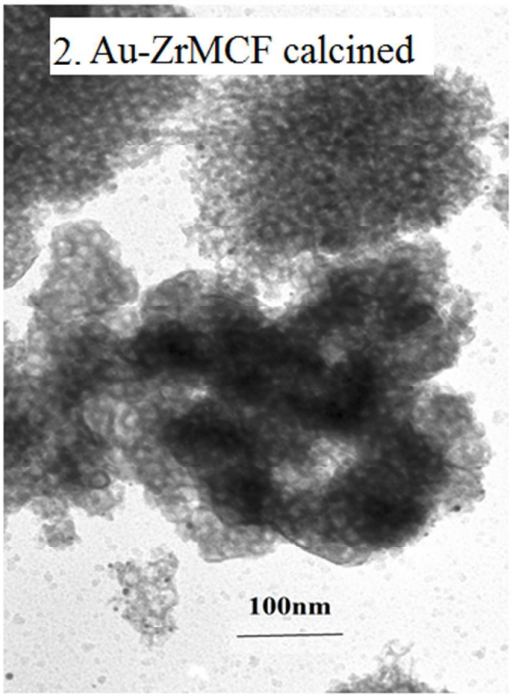
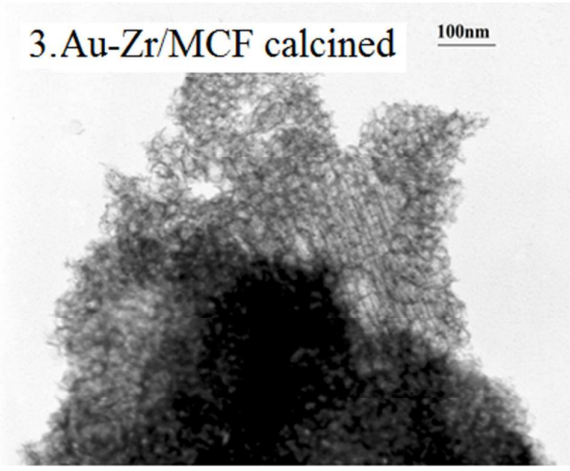
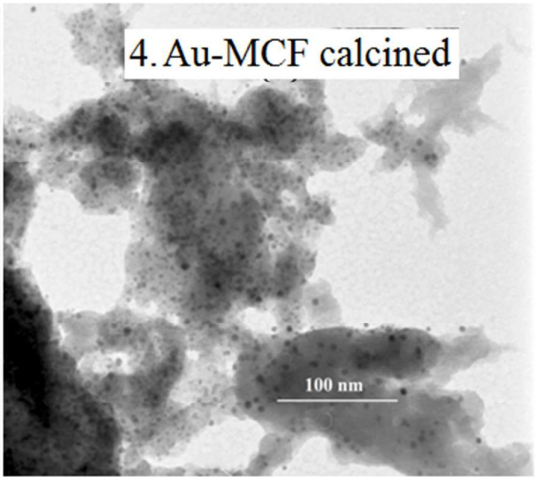


Figure S1. Difference PDF's showing typical Au-Au distances in cubic *Fm3m* space group (down arrows). Line colors the same as in Fig. 1, a) dried, b) calcinated, c) oxidized.


1. Au-MCF calcined
100nm


2. Au-ZrMCF calcined
100nm


3. Au-Zr/MCF calcined
100nm


4. Au-MCF calcined
100 nm

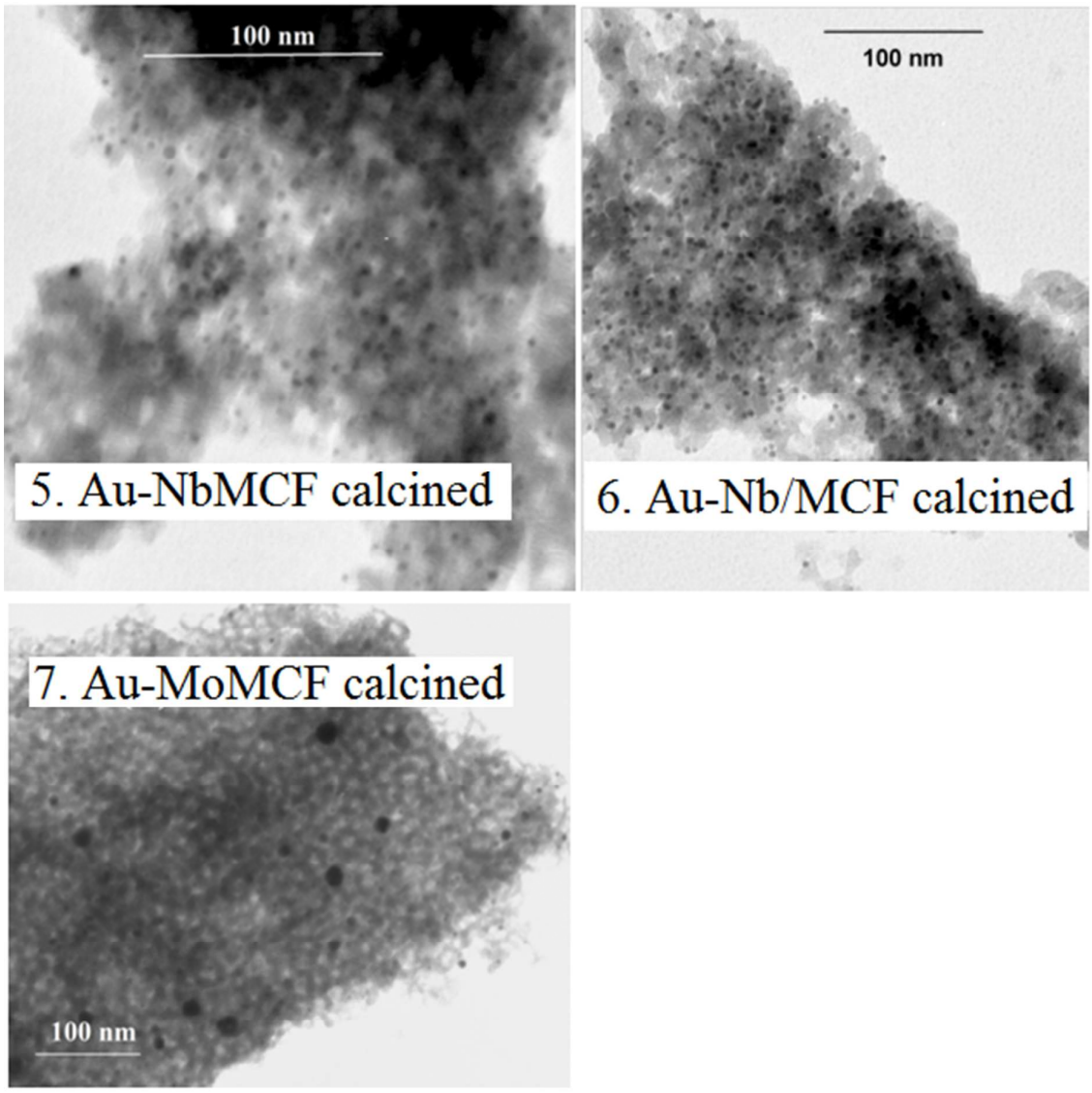


Figure S2. TEM images of the seven catalysts after calcination, showing the Au nanoparticle sizes.

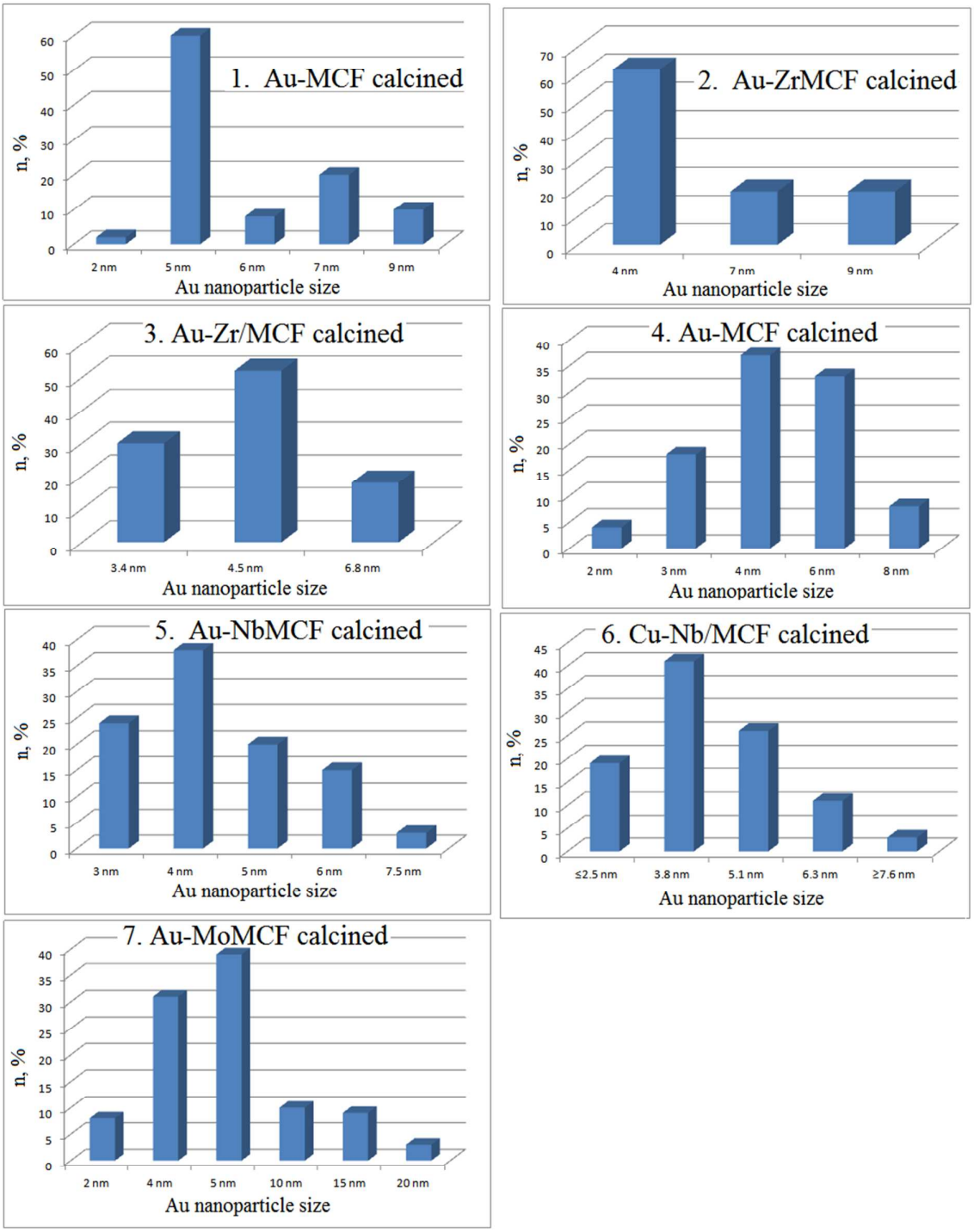


Figure S3. Size distribution of Au nanoparticles obtained from TEM.

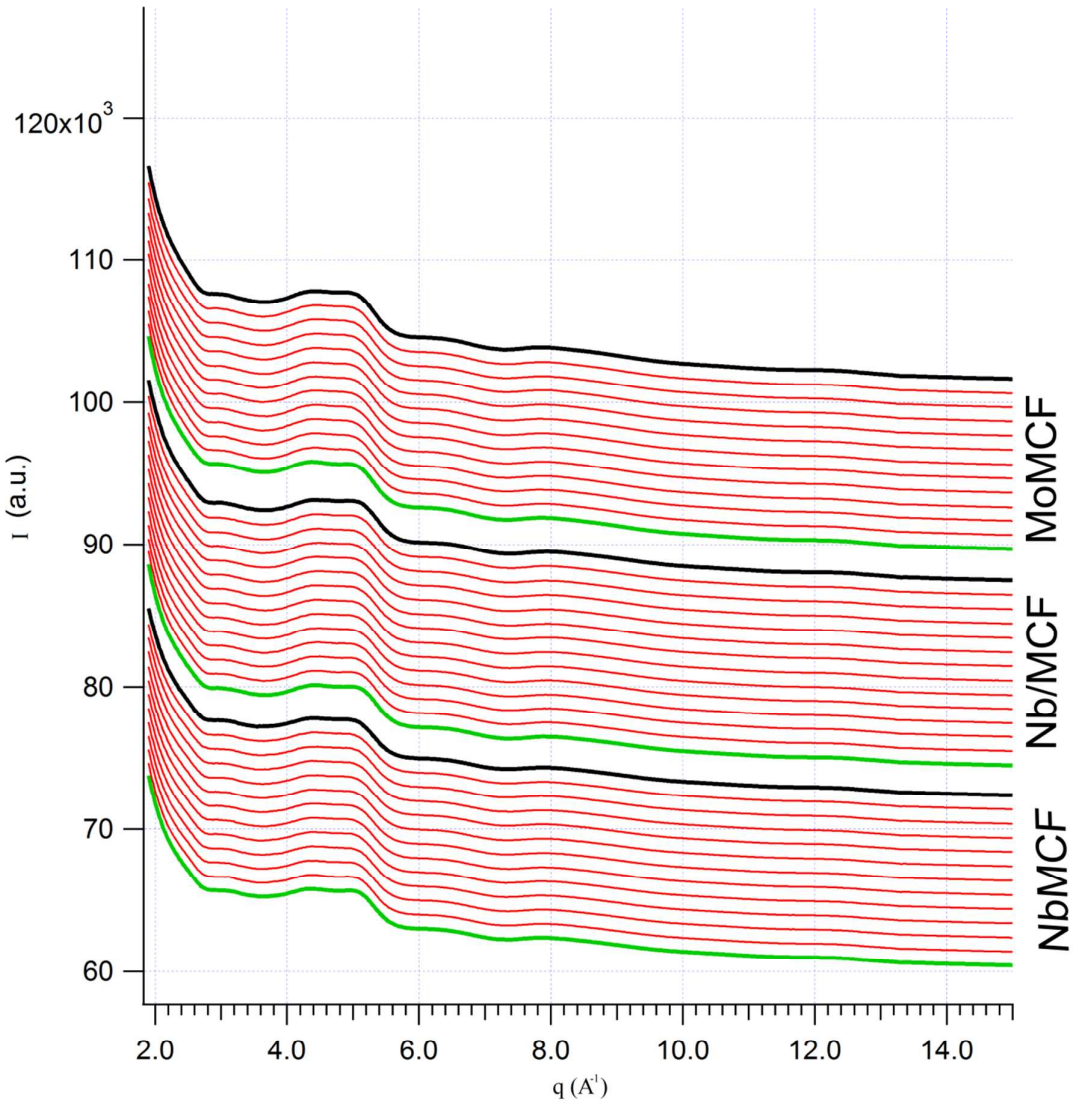


Figure S4. Powder diffraction patterns of catalysts 5-7 without Au-loading during calcination. Measurement done every 0.5h. Calcination progress in upward direction (from green-initial to black-final line).

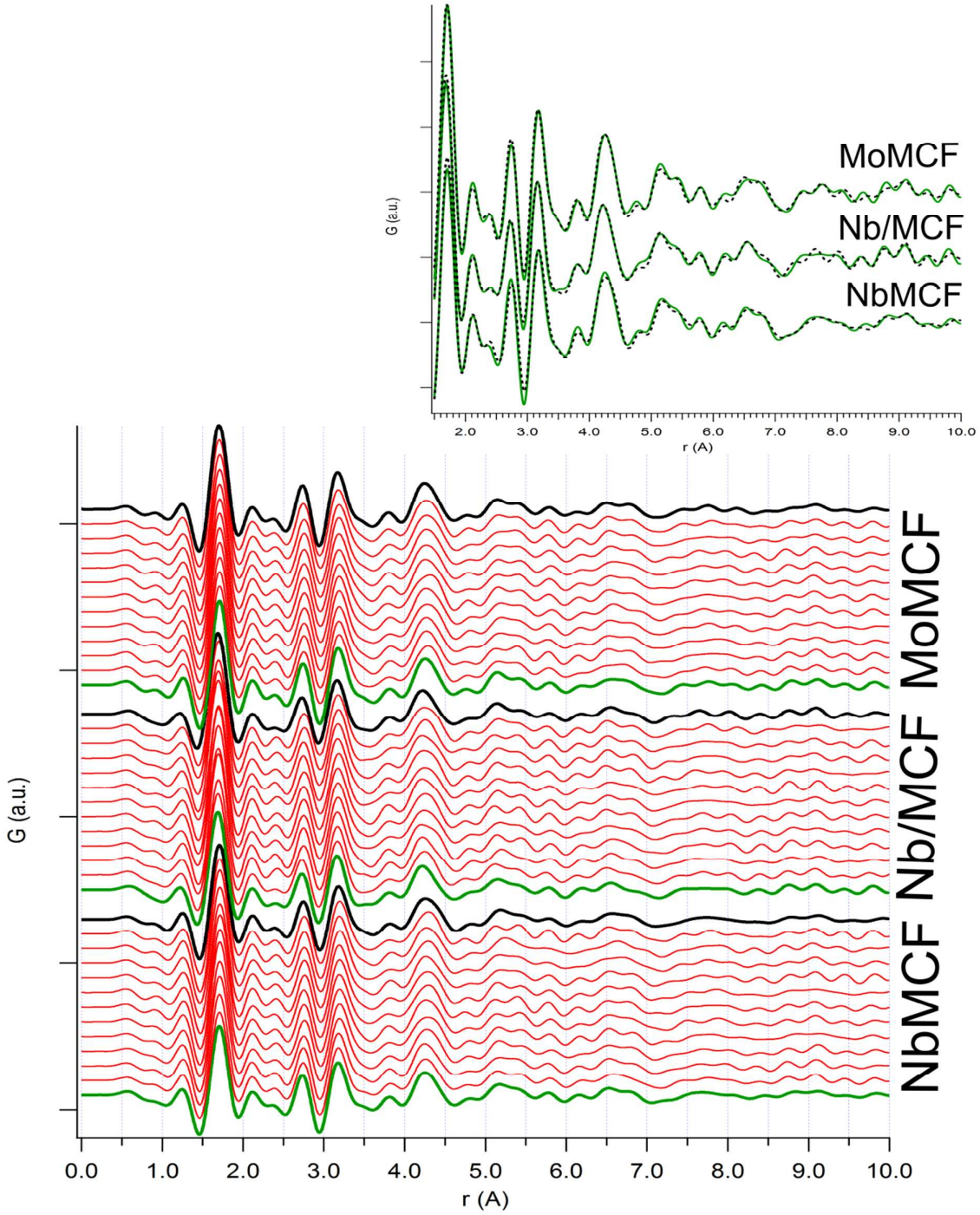


Figure S5. PDF plots of Au-free catalysts 5-7 during calcination. Calcination progress in upward direction (from green-initial to black-final line). Inset shows catalyst before (green solid) and after calcinations (black dashed).

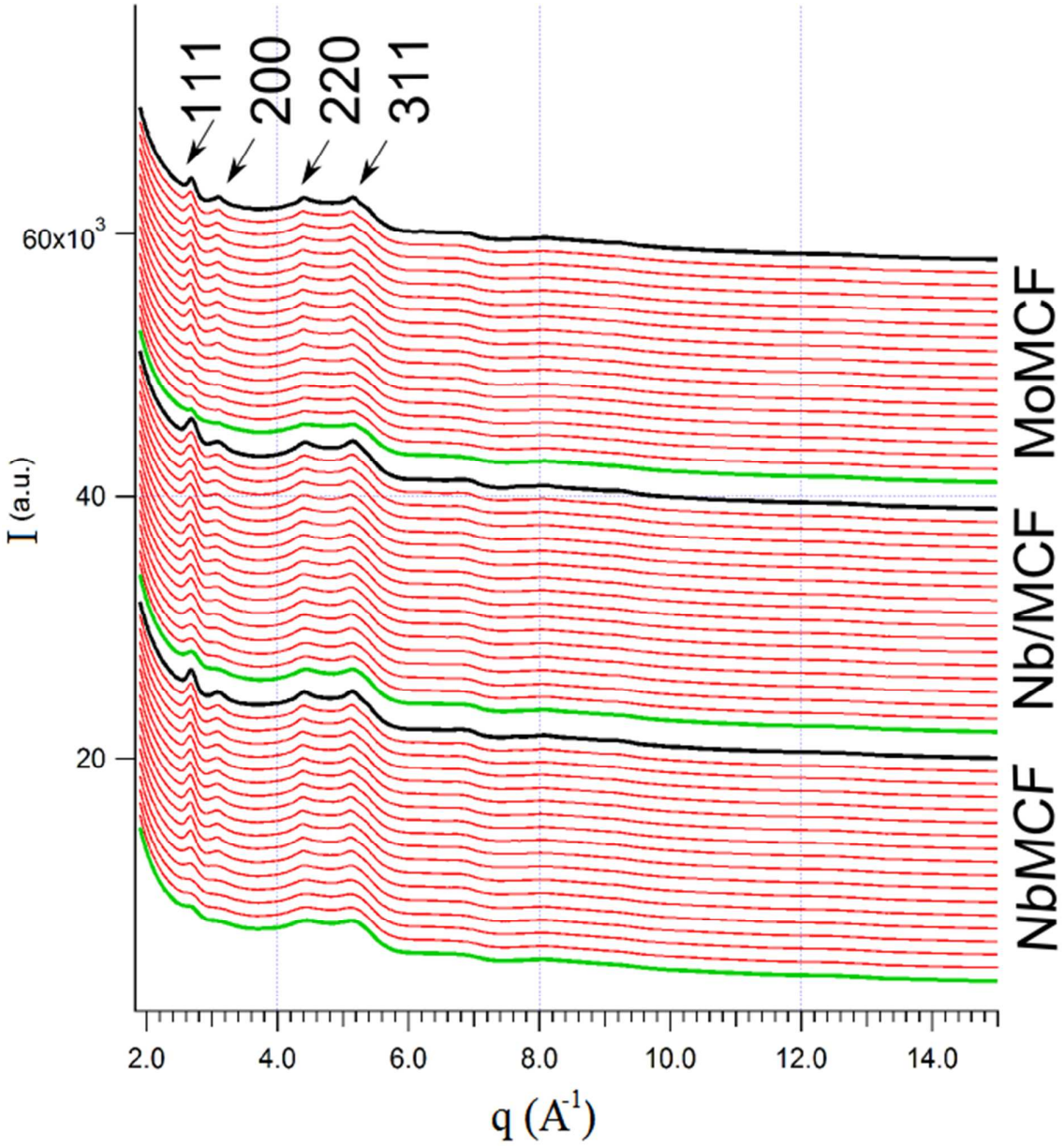


Figure S6. Powder diffraction patterns of catalysts 5-7 with Au-loading during calcination. Measurements taken every 0.5h.