Electronic Supporting Information for:

Combining PVD structuration with dealloying for the creation of a highly efficient SERS platform

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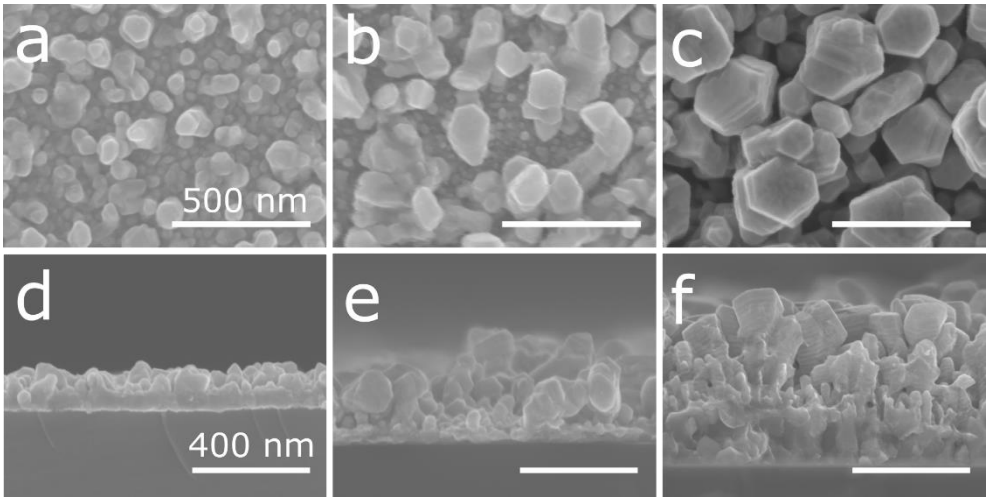

Fig. S1 SEM images in (a-c) plan view and (d-f) cross section of the Ag/Al thin film with 30 at. % of Ag deposited on a 50 nm Ag adhesion layer for (a, d) 2 min, (b,e) 5 min and (c, f) 12 min. The creation of the small island for low deposition time (a, d) highlight the VW growth.

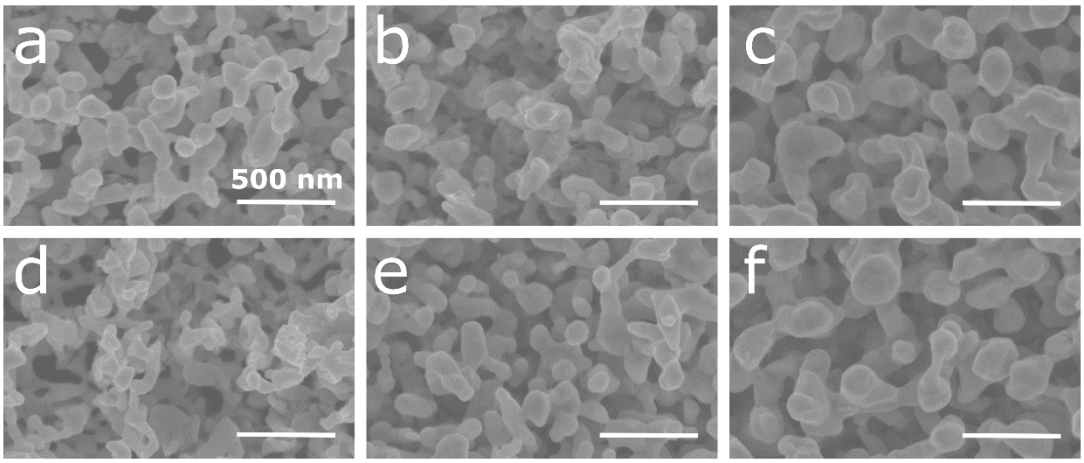

Fig. S2 SEM images in plan view of Ag/Al thin film dealloyed during 120 min in (a-c) HCl and (d-f) H_3PO_4 for sample with an initial composition of (a and d) 18, (b and e) 30 and (c and f) 36 at. % Ag. Scale bar: 500 nm. The morphology after dealloying after 120 min in HCl and H_3PO_4 reveals the same morphology depending on the initial silver content. The ligament size is increasing when increasing the initial silver content.

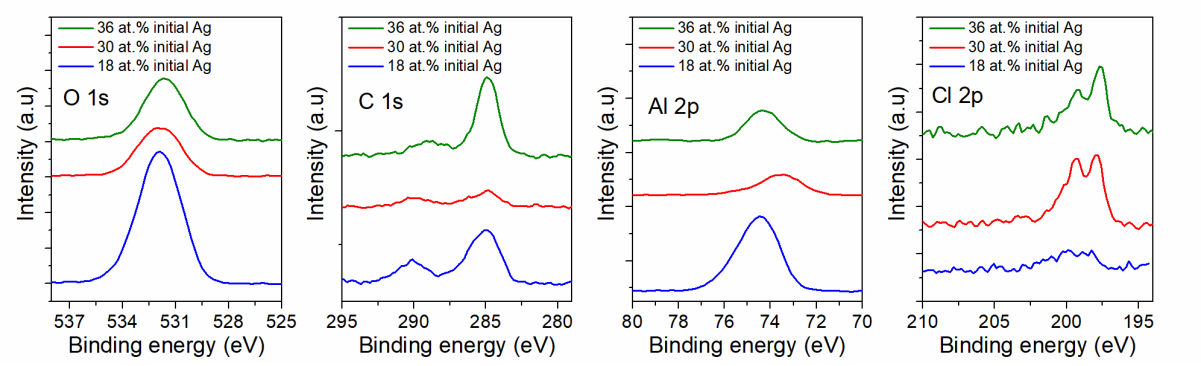

Fig. S3 XPS O 1s, C 1s, Al 2p and Cl 2p spectra recorded on Ag/Al alloy thin film dealloyed during 60 min in HCl solution at 1 wt.% with an initial composition of 18, 30, and 36 at. % of Ag.

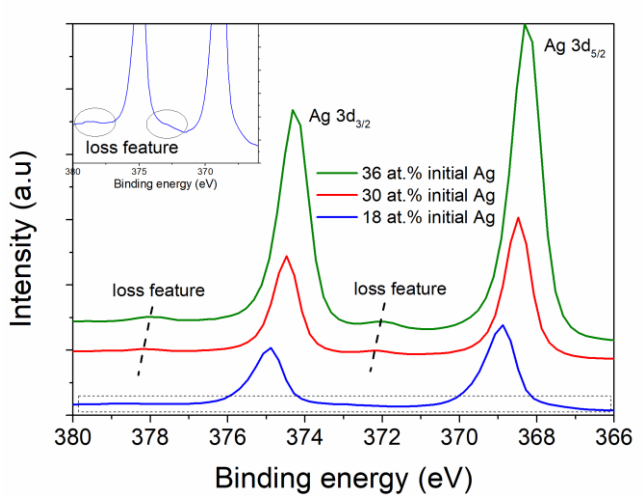

Fig. S4 XPS Ag 3d recorded on Ag/Al alloy thin film dealloyed during 60 min in HCl solution at 1 wt.% with an initial composition of 18, 30, and 36 at. % of Ag. The inset is a zoom of the dotted area corresponding to the sample with 18 at. % of initial silver. All samples after dealloying during 60 min highlight the loss feature characteristics from the metallic silver.

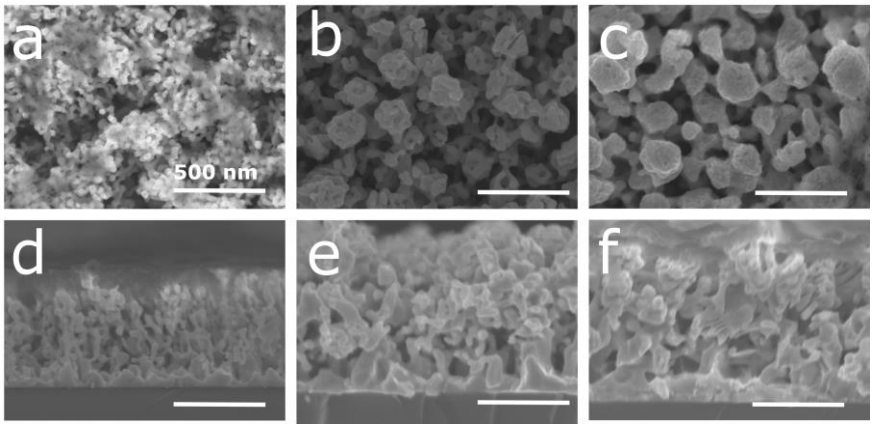

Fig. S5 (a, b) Plan view and (c, d) cross section SEM images of the Ag/Al alloy thin film dealloyed during 60 min in H_3PO_4 solution at 10 wt.% with an initial composition of (a, d) 18, (b, e) 30, and (c,f) 36 at.% of Ag. Scale bar: 500 nm

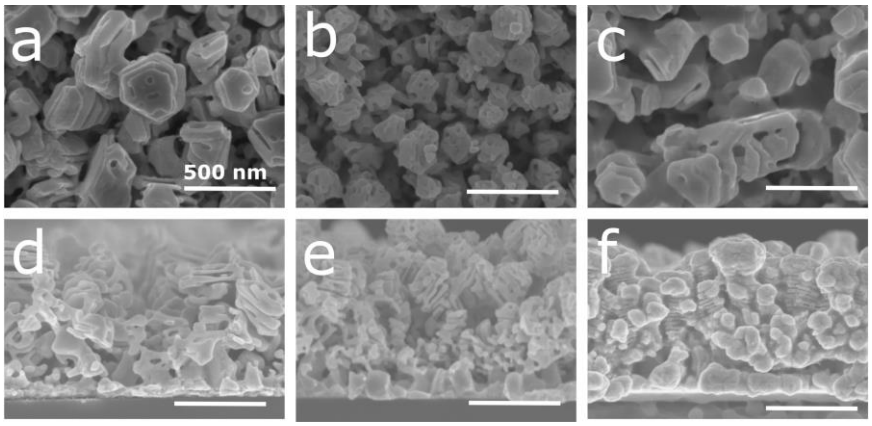

Fig. S6 (a, b) Plan view and (c, d) cross section SEM images of the Ag/Al alloy thin film dealloyed during 60 min in NaOH solution at 10 wt.% with an initial composition of (a, d) 18, (b, e) 30, and (c,f) 36 at.% of Ag. Scale bar: 500 nm

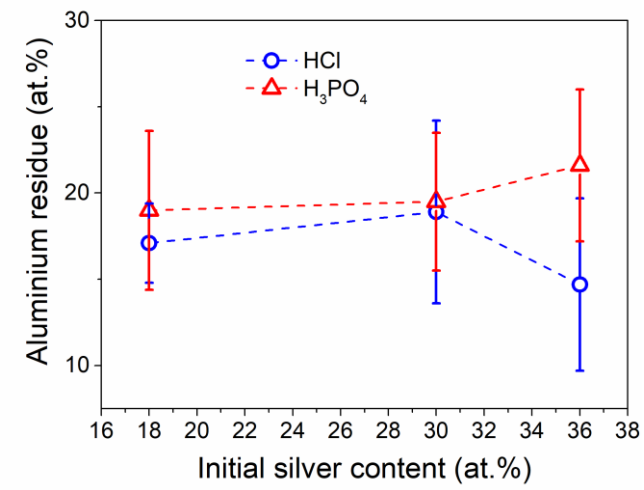

Fig. S7 Aluminium residue probed by EDX of the Ag/Al alloy thin film dealloyed during 120 min in H_3PO_4 solution at 10 wt.% and in HCl solution at 1 wt.% with an initial composition of 18, 30, and 36 at.% of Ag.

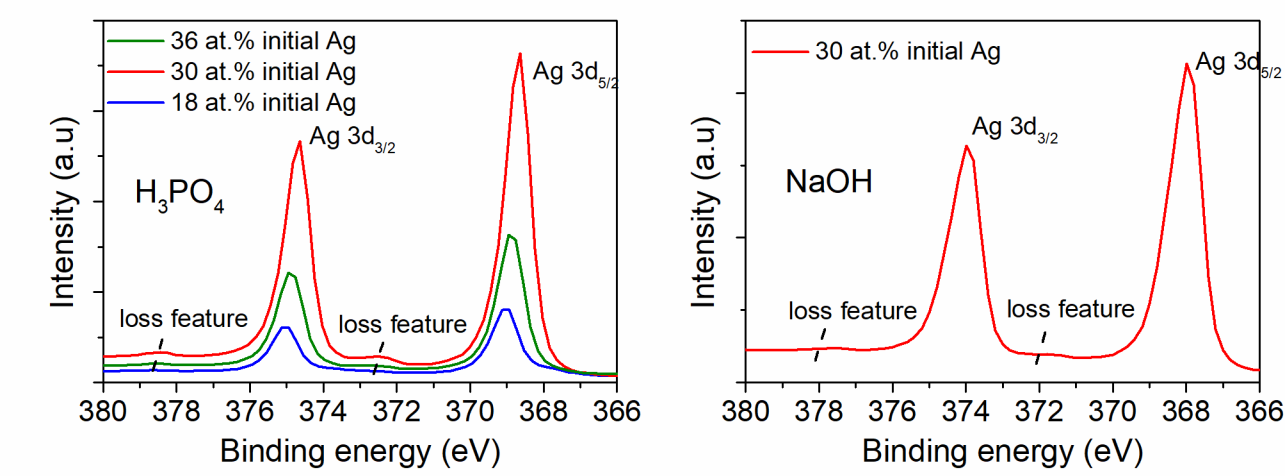

Fig. S8 XPS analysis of the Ag 3d peak of the Ag/Al alloy thin film dealloyed during 60 min in H_3PO_4 solution at 10 wt.% and in NaOH solution at 30 wt.% with an initial composition of 18, 30, and 36 at.% of Ag.

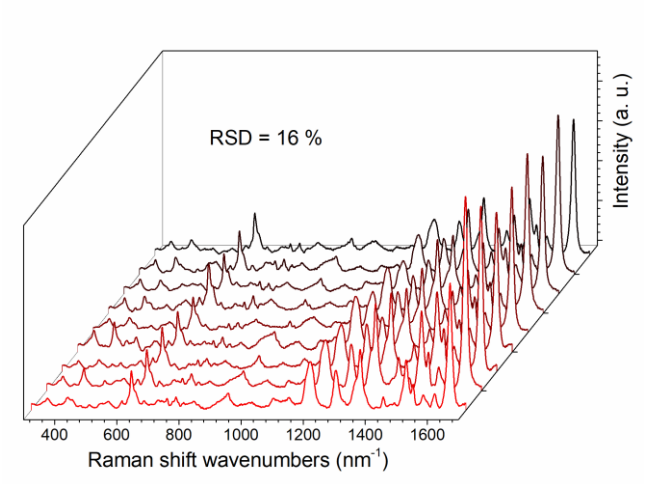

Fig. S9 Raman spectra of RhB diluted at 10^{-7} mol·L^{-1} and recorded in 9 different places over the nanoporous silver made by dealloying an Ag/Al alloy film with 30 at.% of Ag at initial state and dealloyed for 60 min in 1 wt.% HCL solution. Following these analysis, the RSD for the value of the intensity of the peak at 1648 cm^{-1} was evaluated to 16%.