

**A mesoscopic view on the growth of Ag/Pt(111):
surface alloying, de-alloying, reconstruction and interface stability**

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The initial growth of silver on Pt(111) at elevated temperatures (> 600 K) has been revisited with LEEM. The formation of a surface confined alloy and its subsequent de-alloying within the first monolayer is confirmed. Upon growth of the second layer more complex behaviour is observed. This includes a renewed partial alloying and strain relieve by reconstruction during growth of the second layer. Remarkable step rearrangements occur still during growth of the third layer, accompanying the final de-alloying of the silver film.