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Deposition of metal onto a sulfur loaded substrate DAEHO KIM, DEZHENG SUN, WENHAO LU, ERIC CHU, JON WYRICK, ZHIHAI CHENG, LUDWIG BARTELS, University of California, Riverside — A Cu(111) surface can be loaded with sulfur to form a variety of surface patterns. In this work, we study the deposition of copper and molybdenum on a Cu(111) surface and the resultant film morphology as a function of the sulfur pre-loading of the substrate. For copper deposition, we find the formation of adstructures of different geometry depending on the sulfur decoration of the substrate. A 0.143 ML S coverage leads to rectangular structure consisting of 6 lobes while a 0.118 ML S coverage leads to 7×7 structure. Notably, annealing allows the sulfur to float up decorating the newly deposited layer. Deposition of molybdenum shows a similar pattern, with ordered MoS2 forming as a result of annealing.

Theodore Einstein

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