Ballistic Deposition of Nanoclusters.\textsuperscript{1} JEFFREY ULBRANDT, YANG LI, RANDALL HEADRICK, Univ of Vermont — Nanoporous thin-films are an important class of materials, possessing a large surface area to volume ratio, with applications ranging from thermoelectric and photovoltaic materials to super-capacitors. In-Situ X-ray Reflectivity and Grazing Incidence Small Angle X-Ray Scattering (GISAXS) were used to monitor thin-films grown from Tungsten Silicide (WSi2) and Copper (Cu) nanoclusters. The nanoclusters ranged in size from 2 nm to 6 nm diameter and were made by high-pressure magnetron sputtering via plasma gas condensation (PGC). X-Ray Reflectivity (XRR) measurements of the films at various stages of growth reveal that the resulting films exhibit very low density, approaching 15\% of bulk density. This is consistent with a simple off-lattice ballistic deposition model where particles stick at the point of first contact without further restructuring.

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