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Sputtered Thin Film Polycrystalline Molybdenum on Glass[1]
PATRICK KRANTZ, ZHAONING SONG, ADAM PHILLIPS, MICHAEL HEBEN, University of Toledo, Wright Center for Photovoltaics Innovation and Commercialization — Molybdenum (Moly) thin films are used as the back contact in a variety of photovoltaic (PV) devices. In the substrate configuration, the Moly film is deposited on a substrate, typically glass, prior to PV layer deposition. The crystal structure and electrical properties of the Moly film can have a significant impact on the PV device performance. Therefore, it is critical to have well characterized Moly films prior to PV material deposition. The parameter space of sputtered Moly onto soda-lime glass was investigate and is reported here. Surface morphology, crystalline structure, thickness, and resistivity were measured, and delamination behavior of the Moly films was explored. Sputtering parameters that result in high quality crystalline structure and high conductivity were determined for a range of Moly film thicknesses.

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