

Surface Science 93 (1980) 310–326

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**ANGLE-RESOLVED UV PHOTOEMISSION STUDIES OF THE TWO-DIMENSIONAL BAND STRUCTURES OF SULFUR, SELENIUM, AND TELLURIUM MONOLAYERS ADSORBED ON ALUMINIUM (111)**

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Received 21 August 1979; accepted for publication 23 October 1979

On Al(111) surfaces adsorbate layers of S, Se, and Te were prepared by reaction with  $\text{H}_2\text{S}$  and evaporation of selenium and tellurium. Two condensation processes of different rate were found by measuring the photoemission intensity of the adsorbate p-levels as a function of dosis or evaporation time. The first process was identified as the build-up of a monolayer. By LEED and angular resolved UPS it was found that the atoms of the monolayers are hexagonally close packed and aligned to, but not in registry with the substrate. The nearest neighbour distances are 0.35 nm for S, 0.37 nm for Se, and 0.40 nm for Te. These distances are only somewhat smaller than the Van der Waals diameters. By measuring the kinetic energy and emission angle of photoelectrons from the adsorbate p-levels using polarized and unpolarized HeI (21.2 eV) radiation the two-dimensional band structures could be constructed. They were found to be similar for all three adsorbate systems and only shifted as a whole to lower binding energies with increasing  $Z$ . The two-dimensional band structures were also calculated using a simple tight-binding model. The main features of the experimentally obtained bands could be reproduced by a calculation using only two parameters. The main differences between the calculated and experimentally evaluated bands could be attributed to the interaction of the monolayer with the substrate. For Te no important influence of the spin-orbit coupling was found.