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The electronic band structure of CoS_2 NING WU, Dept. of Physics and Astronomy and the Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, YAROSLAV LOSOVYJ, Center for Advanced Microstructures and Devices, Louisiana State University, DAVID WISBEY, KIRILL BELASHCHENKO, Dept. of Physics and Astronomy and the Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, WAI-NING MEI, Department of Physics, University of Nebraska-Omaha, MICHAEL MANNO, LAN WANG, CHRIS LEIGHTON, Department of Chemical Engineering and Materials Science, University of Minnosota, PETER DOWBEN, Dept. of Physics and Astronomy and the Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln — We have identified a strongly dispersing band of $CoS_2(100)$, with both sulfur and cobalt weight, along the Γ-X direction of the bulk Brillouin zone, from photon energy dependent angle resolved photoemission studies. From the critical points of the experimental band structure, the inner potential is estimated at about 4 to 5 eV, consistent with LEED I(V) analysis. The small inner potential indicates that CoS_2 has a narrow band width, consistent with the theoretical expectations. The clearly favored structural model from the LEED I(V) analysis is sulfur with cobalt terminated surface.

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