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Probing the Electronic Band Structure of the Ferromagnetic Semiconductor VI3 using Angle Resolved Photoemission Spectroscopy¹ DEREK BERGNER, California State University, Long Beach, TAI KONG, University of Arizona, PING AI, DANIEL EILBOTT, CLAUDIA FATUZZO, SAMUEL CIOCYS, NICHOLAS DALE, CONRAD STANSBURY, DREW LATZKE, University of California Berkeley, RYAN RENO, California State University, Long Beach, ALESSANDRA LANZARA, University of California Berkeley, CLAUDIA OJEDA-ARISTIZABAL, California State University, Long Beach, NANOELECTRONICS GROUP TEAM, LANZARA RESEARCH GROUP COLLABORATION, KONG LAB COLLABORATION — Since the discovery of graphene, the one atom thick crystal of carbon, there has been a push for more two-dimensional Van der Waals materials with interesting electronic properties, particularly those materials that exhibit intrinsic ferromagnetic properties in the 2-D realm. Vanadium Triiodide (VI3) is a honeycomb material with an iodine-iodine van der Waals gap between the layers that has shown promise as a two-dimensional ferromagnet. Angle Resolved Photoemission Spectroscopy (ARPES) is an experimental tool that utilizes the photoelectric effect to unveil the band structure and electronic properties of materials. We have measured the band structure of VI3 finding agreement with recent reports [1]. Our study using different polarizations of the light, provides information about the character and geometry of the orbitals that give VI3 its magnetic properties. [1] A. Kundu, Y. Liu and T. Valla, Scientific Reports 10 15602 (2020).

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