

Abstract Submitted
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Structural phase transitions in two-dimensional atomic materials¹

SALVADOR BARRAZA-LOPEZ, University of Arkansas — Over a year ago, we introduced the concept of structural phase transitions in monochalcogenide monolayers such as GeS, GeSe, SnS and SnSe; we determined that monochalcogenides with small mean atomic number may be able to undergo phase transitions prior to melting [1] and that these materials remain semiconducting on a structural transition that changes the coordination number from three to five. Then, we were the first to demonstrate sudden changes in optical properties, and a quenching of the electric dipole in these two-dimensional ferroelectrics at the transition temperature [2]. In this talk, the three conditions that generalize these transitions to other two-dimensional materials will be presented [3]. References: 1. M. Mehboudi et al. *Nano Lett.* 16, 1704 (2016). 2. M. Mehboudi et al. arXiv:1603.03748. 3. G. G. Naumis, S. Barraza-Lopez, M. Oliva-Leyva, and H. Terrones. *Rep. Prog. Phys.* (forthcoming).

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