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Charge density wave phase transitions in Tantalum Disulfide¹ MARC REYNAUD, MICHAEL ALTVATER, ADITYA SRIPAL, ALICE HUANG, GUOHONG LI, EVA Y. ANDREI, Rutgers University, Physics and Astronomy, RUI ZHAO, JOSHUA ROBINSON, The Pennsylvania State University, Materials Science and Engineering, Center for Two- Dimensional and Layered Materials — The discovery of transition metal dichalcogenides has reopened the interest in charge density wave physics. By looking at the phase transition properties, it is possible to create switches with properties exceeding the traditional FETs. In this work, we fabricated 2D nanoscale switches made of 1T-TaS2 and graphene. We tested the transport properties between the Mott insulating state and the conductive state of the switch. Our work will provide insight on possibilities for the production of ideal switches and transistor logic.

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