

Abstract Submitted
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Organic-inorganic Schottky diode based on few layers of graphene¹ MARIA ABREU, IDALIA RAMOS, NICHOLAS PINTO, University of Puerto Rico- Humacao — A Schottky diode was fabricated using several layers of graphene and a n-doped semiconductor and electrically characterized. The diode current-voltage characteristics show that it is forward biased in the first quadrant and reverse biased in the third. The diode turn on voltage is weakly dependent on temperature and increases slightly upon lowering the temperature. The diode rectification ratio (I_{on}/I_{off}) decreases as temperature is lowered consistent with the semiconducting nature of graphene. In addition, we have studied the diode behavior in the presence of nitrogen and ammonia gas. The diode characteristics are unaffected by nitrogen but in the presence of ammonia they are similar to that obtained by two back-to-back Schottky diodes. We believe that this change could be due to a slight modification of the surface states and the n-doping of the graphene layer caused by ammonia.

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