

Abstract Submitted
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Nano-rods of zinc oxide in nano-graphene PEDRO ORTIZ, ELIZABETH CHAVIRA, MAREL MONROY, Univ Nacl Autonoma de Mexico, JOSÉ ELIZALDE, None, PATRICIA SANTIAGO, ROBERTO SATO, ADRIANA TEJEDA, GUILLERMINA GONZÁLEZ, OMAR NOVELO, CARLOS FLORES, Univ Nacl Autonoma de Mexico — It's of great interest to study the devices based on nano-ZnO and graphene, for their electromagnetic and optical properties to increase the efficiency of solar cells. The graphene multilayers synthesis was done by mechanosynthesis, grinding in a mechanical agate mortar. The zinc oxide nano-rods were synthesized from zinc acetate dihydrate, Ace, (Sigma Aldrich) and ethylene diamine, En, (Sigma Aldrich) with a 1:2 ratio of reagents En/Ace. The ZnO nano-rods in nano-tubes graphene were obtained by mechanosynthesis. The X-ray powder diffraction, shows the shift of C with PDF 12-0212 and ZnO, Zincite PDF 36-1451, both with hexagonal unit cell. The grain size and morphology of graphene (multilayers and nano-tubes), ZnO nano-rods and ZnO-graphene mixture (multilayers, nano-tubes) were observed by scanning electron microscope. Transmission electron microscope, corroborates shown in SEM. Raman spectroscopy, shows the shift of multilayer graphene and the ZnO nano-rods. In photoluminescence measurements, observe the change in intensity in the band defects. Magnetic properties characterization was carried out by Vibrating Sample Magnetometry. We conclude that graphite multilayers dislocated by cutting efforts, forming graphene nano-tubes and encapsulated ZnO nano-rods within graphene.

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