Abstract Submitted
for the MAS14 Meeting of
The American Physical Society

Bidimensional hybrid materials based graphene oxide CYNTHIA GUERRERO-BERMEA, Pennsylvania State Univ; Universidad Autonoma de Nuevo Leon, SELENE SEPULVEDA-GUZMAN, Universidad Autonoma de Nuevo Leon, RODOLFO CRUZ-SILVA, Shishu University, MAURICIO TERRONES, Pennsylvania State Univ — Two-dimensional materials (2D) have historically been studied, due to the large number of unusual physical phenomena that occur when the charge and heat transport are limited to a plane. Some materials with properties dominated by two-dimensional structure are derived from carbon, transition metal chalcogenides (TMS), and other hexagonal materials, exhibiting great electronics phenomena and a high-temperature superconductivity. In this work exfoliation of graphite and MoS2 by intercalation and chemical techniques have been achieved, including the characterization of the resulting materials by SEM and TEM, having good exfoliation to few-layer. The microstructure was also studied by using UV-Vis spectroscopy, FTIR spectroscopy and XRD. In order to produce hybrid functional materials besides of 2D materials with good quality, and for applications in nano-electronic devices, a casting method was used to produce a paper based of graphene oxide and molybdenum disuilfide. The resultant paper has excellent flexibility, and apparently has a good charge transport. Characterization by SEM, XRD, FTIR, and DSC were achieved.

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Date submitted: 29 Aug 2014 Electronic form version 1.4