213-006 STUDY OF PLASMA-TREATED MULTILAYER GRAPHENE PROPERTIES

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This work presents the study of multilayer graphene (MLG) obtainment and functionalization using plasmas of different gas species. MLGs were obtained using mechanical exfoliation methods of preexfoliated graphite in acids. The functionalization of MLGs was made through cold plasma using mixtures of CO2, O2, N2 and Ar gases. Investigation of electrical, optical and morphological properties are presented and discussed. Structure and chemical composition were investigated with Raman, FTIR, XPS and other techniques. MLGs showed a certain incorporation of oxygen as can be seen in XPS results. We investigated the treatment conditions and the changes in the materials obtained particularly the properties of MLGs films and pellets. Applications of these treated MLGs in field emission and super capacitor devices are herein presented and discussed, enabling applications in electronic devices and energy storage areas.