

The synthesis of magnetite/reduced graphene oxide nanocomposites by electron beam for eletrocatalysis application

Reference	Presenter	Authors (Institution)	Abstract
03-067	Raynara Maria Silva Jacovone	Kawabata, V.J. (Instituto de Pesquisas Energéticas e Nucleares); Carneiro, F.W. (Instituto de Pesquisas Energéticas e Nucleares); Jacovone, R.M. (Instituto de Pesquisas Energéticas e Nucleares); de Almeida, E.V. (Instituto de Química da Universidade de São Paulo); Garcia, R.H. (Nuclear and Energy Research Institute); Corio, P. (Instituto de Química da Universidade de São Paulo); Sakata, S.K. (Instituto de Pesquisas Energeticas e Nucleares (IPEN) -);	This work presents the synthesis of magnetite/reduced graphene oxide nanocomposites (MrGO) via electron beam. The graphene oxide (GO) was prepared according to a modified Hummers' method and it was characterized using X-ray diffraction (XRD) and thermogravimetric analysis (TGA). Raman spectroscopy, dynamic light scattering (DLS), transmission electron microscopy (TEM), zeta potential analysis and cyclic voltammetry (CV) were used in order to investigate the structure and properties of MGO. The data showed GO was reduced using 40 kGy. The CV was performed by applying a MrGO layer on the working electrode of a screen-printed carbon electrode, at a scan rate of 50 mVs ⁻¹ , potentials range from -0.5 V until 1.0 V in KCl medium (0.05 mol.L ⁻¹) adding aliquots of 4 mmol L ⁻¹ ferrocyanide solution. Its results show a similar electrochemical response from both samples (maximum current: 45µA). It can therefore be inferred that magnetite/reduced graphene oxide nanocomposites have a potential for electrocatalysis application.

<< Back