

The synthesis of palladium nanoparticles by electron beam into graphene oxide and its electrochemical behavior

| Reference | Presenter | Authors (Institution) | Abstract |
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| 03-069 | Raynara Maria Silva Jacovone | Carneiro, F.W. (Instituto de Pesquisas Energéticas e Nucleares); Kawabata, V.J. (Instituto de Pesquisas Energéticas e Nucleares); Jacovone, R.M. (Instituto de Pesquisas Energéticas e Nucleares); Angnes, L. (University of São Paulo); Garcia, R.H. (Nuclear and Energy Research Institute); Sakata, S.K. (Instituto de Pesquisas Energeticas e Nucleares (IPEN) -); | In this work, graphene oxide (GO) was synthesized by the modified Hummers method and was used as support for palladium nanoparticles to study its electrochemical behavior. The main objective was the incorporation of Pd on the graphene oxide by the electron beam irradiation at 40kGy and 80kGy doses. The GO-Pd nanocomposite was characterized by thermogravimetry analysis (TGA), X-ray diffraction (XRD), electron transmission microscopy (TEM), zeta potential analysis and cyclic voltammetry (CV). The results were satisfactory, indicating success in incorporating the metal in the GO surface. CV studies were conducted using screen printed electrode modified with nanocomposite, SPE/GO-Pd, 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 ferricyanide solution and its results showed a linear increase in the current. It can therefore be inferred that palladium /graphene oxide nanocomposites have a potential for sensors. |

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