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Optical Properties Of Reduced Graphene Oxide-Porphyrin Composite Nanorods

M. KHENFOUCH[1], N. MONGWAKETSI[2], S. KHAMLICH[2], M. BAÏTOUL[1], M. MAAZA[2] and J. Wery Venturini[3]

[1] University Sidi Mohamed Ben Abdellah, Faculty of Sciences Dhar el Mahraz, Laboratory of Solid state Physics, Group of Polymers and nanomaterials, BP 1796 Atlas Fez 30 000, Morocco
[2] iThemba LABS-National Research Foundation of South Africa, Old Faure Road, POBox 722, Somerset West 7129, Western Cape Province, South Africa
[3]Institut des materiaux Jean Rouxel de Nantes, 2, rue de la Houssinière Nantes (France)
Corresponding authors: khenfouch@yahoo.fr , baitoul@yahoo.fr

Abstract:

Porphyrin materials in general are known to be photoconductors, photovoltaics and capable of light induced charging [1]. The graphene becomes a rising star with its exciting physical and chemical properties [2,3,4]. The association of these properties can generate one of the most important nanocomposites for optoelectronic applications where the exciton lifetime is the most important factor in their origin. In this work, we have synthesized graphene-porphyrin composite based nanorods by a self assembly technique. Moreover, the obtained nanorods of graphene/porphyrin were characterized for structural, morphological and optical analysis. Furthermore, the time resolved photoluminescence measurements show that the exciton lifetime is enhanced by combining graphene-porphyrin nanorods which make them a promising candidate for application in optoelectronic devices.

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