ORGANIZING COMMITTEE

Chair persons

Paulo F. P. Fichtner - UFRGS - RS
Naira M. Balzaretti - UFRGS – RS

National Committee

Aldo Felix Craievich (USP-SP)
Aloísio Nelmo Klein (UFSC)
Antonio Carlos Hernandes (USP-SC)
Carlos Frederico de Oliveira Graeff (UNESP)
Carlos Maurício Lepiensi (UFPR)
Dulce Maria de Araujo Melo
Edgar Dutra Zanotto (UFSCAR)
Elisa Maria Baggio Saivovitch (CBPF)
Elsón Longo (UNESP)
Fernando Cláudio Zawislak (UFRGS)
Fernando Lazaro Freire Junior (PUC-RJ)
Iêda Maria Garcia dos Santos (UFPB)
Ivan Guillerme Solorzano (PUC-RJ)
Jesiel Freitas Carvalho (UFG)
José Alberto Giacometti (UNESP)
José Antônio Eiras (UFSCAR)
José Arana Varela (UNESP)
Julio Ricardo Sambrano (UNESP)
Margareth Spangler (CETEC – MG)
Raul José da Silva Câmara Mauricio da Fonseca (UERJ)
Renato de Figueiredo Jardim (USP-SP)
Roberto Mendonça Faria (USP-SC)
Sergio de Souza Camargo Junior (UFRJ)
Waldemar Augusto de Almeida Macedo (CDTN)
Walter Jose Botta Filho (UFSCAR)

Local Committee

Adriana Pohlmann (UFRGS)
César Petzhold (UFRGS)
Cristiano Krug (UFRGS)
Daniel L. Baptista (UFRGS)
Eduardo Ceretta Moreira (Unipampa)
Fábio Teixeira Dias (UFPEL)
Gustavo M. de Azevedo (UFRGS)
Luiz F. Schelp (UFSC)
Márcia R. Gallas (UFRGS)
Naira M. Balzaretti (UFRGS)
Paulo F. P. Fichtner (UFRGS)
Ricardo M. Papaleo (PUC-RS)
Investigation of graphene nanosheets stable suspensions and graphene films obtained by spin coating technique

V. F. Soares¹, P. S. P. Herrmann¹, A. Manzolli¹, M. Simões¹
¹ National Nanotechnology Laboratory for Agribusiness - Embrapa Instrumentação, São Carlos, SP, Brazil

Graphene has been deeply studied recently due to its wide applicability in materials science, specially in thin conducting films for sensors [1-3]. Several methods can be used in order to obtain graphene sheets, such as: CVD and epitaxial growth, mechanical exfoliation, colloidal route, etc [1]. In this study graphene oxide was obtained through Hummers method [4]. The material was then sonicated for exfoliation and then reduced using two reducing agents, catechol and hydrazine. Thin films were obtained by spin coating two substrates: glass and PET. The obtained materials were characterized by FTIR, NMR, UBVIS, AFM, SEM, contact angle analysis (Figure 1), and zeta potential. The dispersability of graphene sheets increased in the presence of PSS surfactant and in basic pH. The films characteristics are strongly dependent on the dispersion degree of the suspension, which makes necessary an optimization of suspensions properties in order to obtain homogeneous films. The graphene films obtained by spin coating open a new possibility to applications.

Figure 1: Contact angle of water droplets (α) in: a) PET (α = 72°); b) PET + graphite oxide film (α = 40°); c) PET+graphene film (α = 63°); d) glass (α=53°); e) glass + graphite oxide film (α = 28°); f) glass + graphene film (α = 68°).

Work supported by Empresa Brasileira de Pesquisa Agropecuária.


herrmann@cnpia.embrapa.br
Rua XV de Novembro, 1452 São Carlos/SP CEP13560970.