

Encontro da X SBPMat

Gramado-RS

25 to 29 | september
2011

Conference Details and Registration

All attendees are encouraged to visit the conference website <http://www.sbpomat.org.br/x-meeting> for further and updated information such as registration, submission of abstracts, important links for traveling (visas, travel agencies) and hotel reservation.

Symposia

- A) Magnetic and Superconducting Materials
- B) Biodegradable Polymer Materials
- C) Electronic Materials
- D) Surface Engineering: Fabrication, Characterization, Properties and Applications of Protective Coatings and Modified Surfaces
- E) Materials with Negative Properties
- F) Nanostructured Functional Materials for Advanced Energy and Environmental Applications
- G) Molecular Modeling Materials Science
- H) Structure-property Relationship of Advanced Metallic Materials
- I) Sol-gel Route to Prepare New Inorganic, Hybrid and Multifunctional Materials
- J) Solidification of Metals and Alloys
- K) Supramolecular Organic Materials for Electronic, Photonics and Nanotechnology
- L) Structure-Property Relationship of Ceramic Materials: Theoretical and Experimental Aspects
- M) Advances and Applications of Electron Microscopy
- N) Prospects for Materials Science with Synchrotron Radiation in Brazil
- O) 1st Brazilian Symposium in Friction Stir Welding and Processing
- P) Graphene

Official Travel Agency: Liga Turismo

Agency provides excellent hosting, airline tickets (20% discount), Gramado-PoA airport shuttle options and sightseeing suggestions.

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Brazilian Materials Research Society

X Brazilian MRS Meeting

- 16 symposia with oral, poster and invited lecture presentations
- Plenary lectures
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10 years of excellence in the congregation of science and research in materials technology in Brazil

Contact

Secretariat
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Conference Chairs

Paulo F. P. Fichtner - UFRGS - RS
Naira M. Balzaretto - UFRGS - RS

Important Dates

April, 5th - Registrations open
May, 30th - Submissions deadline
June, 13th - Acceptance

Support



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Silver nanoparticles and carboxymethylcellulose nanocomposites: Synthesis and surface properties

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Silver nanoparticles (AgNPs) have been widely explored during the past decades due to their interesting properties and potential applications in electronics, catalysis, nanocomposites, etc [1]. Carboxymethylcellulose (CMC) is a natural, biodegradable and water-soluble polymer that exhibits thermal gelatinization and excellent film forming properties [2]. In this study, CMC - AgNPs nanocomposites are fabricated with different particles size in aqueous solution with the ultimate goal of improving the surface hydrophobic properties of the pure CMC matrix. AgNPs were synthesized by reduction of silver nitrate salts with sodium borohydride. CMC films were prepared using the ratio 2/98 (CMC/water) [3]. The nanoparticles syntheses result in spherical nanoparticles with two different particles sizes of 40 and 100 nm. Surface hydrophobic properties of the films were investigated by contact angle tests. Pure CMC films exhibited high hydrophilic surface with a contact angle of 40°. This value decreased to 9° ± 0.9 after 120 s. Upon addition of AgNPs (100 nm) in films, the initial contact angle was 55°. In CMC films containing 40 nm nanoparticles, the initial contact angle was 68°. SEM analyses for films containing 40 nm silver nanoparticles revealed spherical nanoparticles homogeneously distributed in the CMC films. These findings indicate that use of nanotechnology can improve functionality of films for applications in food industry as packaging. The decrease in the hydrophilicity of the films is promising for applications as food packaging, as a means to improve product quality and shelf stability.

Keywords: Silver nanoparticles, carboxymethylcellulose, nanocomposites, contact angle.
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[2] H. Almasia, B. Ghanbarzadeha, A. Entezami. *International Journal of Biological Macromolecules* 46, 1 (2010).

[3] M. R. de Moura, M. V. Lorevice, L. H. C. Mattoso, V. Zucolotto. *Journal of Food Science*, 76, 25 (2011).

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