

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.sbpmat.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.

Liga Turismo also provides travel-hosting-tour combo options! Get in touch!

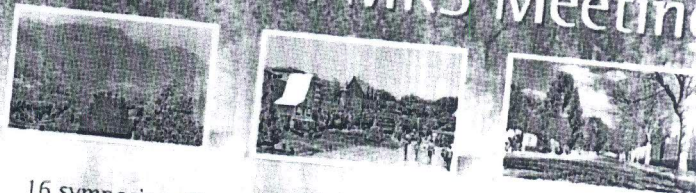
Phone: +55 51 3085-4466 or +55 54 3286-4048
Email: reservas@ligaturismo.com.br



SBPMat
Brazil-MRS

Brazilian Materials
Research Society

X Brazilian MRS Meeting



16 symposia with oral, poster and invited lecture presentations

Plenary lectures

Exhibits

Celebration of 10 years of Brazilian MRS

National Committee

Aldo Felix Craievich (USP-SP)
Aloisio Nelmo Klein (UFSC)
Antonio Carlos Hernandes (USP-SC)
Carlos Frederico de Oliveira Graeff (Unesp)
Carlos Maurício Lepienski (UFPR)
Dulce Maria de Araujo Melo (UFRN)
Edgar Dutra Zanotto (UFSCar)
Elisa Maria Baggio Saitovitch (CBPF)
Elson Longo (Unesp)
Fernando Cláudio Zawislak (UFRGS)
Fernando Lazaro Freire Junior (PUC-RJ)
Iêda Maria Garcia dos Santos (UFPB)
Ivan Guillermo 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 C. M. da Fonseca (UERJ)
Renato de Figueiredo Jardim (USP-SP)
Roberto Mendonça Faria (USP-SC)
Sergio de Souza Camargo Junior (UFRJ)
Waldemar Augusto A. Macedo (CDTN)
Walter Jose Botta Filho (UFSCar)

Local Committee

Adriana Pohmann (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 (UFMS)
Márcia R. Gallas (UFRGS)
Naira M. Balzaretto (UFRGS)
Paulo F. P. Fichtner (UFRGS)
Ricardo M. Papaleo (PUC-RS)

*10 years of excellence in
the congregation of science
and research in materials
technology in Brazil*

Contact

Secretariat
x-meeting@sbpmat.org.br
(55) (51) 3231-0311

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



Credit of photos: Leonid Strelchik

CONTRIBUTIONS FROM MICROSCOPY TECHNIQUES FOR THE MECHANISM ELUCIDATION OF TiO₂ NANOPARTICLES PHOTOCATALYTIC ACTIVITY

C. Ribeiro¹, V. R. Mendonça², W. Avansi¹, G. B. Soares² and H.A.J.L. Mourão²

¹Embrapa Instrumentation, São Carlos, SP, Brazil.

²Universidade Federal de São Carlos, Departamento de Química, São Carlos, SP, Brazil.

Semiconductor nanocrystals have been widely used in photocatalysis of the degradation of organic pollutants, but it is consensual that TiO₂ anatase nanocrystals have one of the best performances observed. Several aspects determine the efficiency of this material as a catalyst, such as the control of TiO₂ crystalline phase; relative amount of catalyst; doping; etc, as well as several aspects related to the crystal itself, as morphology, anisotropy degree and exposure of different crystalline facets. Also, the coexistence of this material in crystalline heterojunctions with other semiconductors (such as SnO₂, V₂O₅, among others) needs be discussed as a valuable way to improve and understand its catalytic properties. In this scenario, this abstract summarizes the recent research efforts about this material, especially regarding our research work in Brazilian Enterprise for Research in Agriculture (Embrapa). Our studies focus the influence of morphological parameters in TiO₂ anatase nanocrystals, in the UV-light photodegradation of dyes and tryazine pesticides. The samples are obtained in different shapes, form almost spherical to very elongated structures, by hydrothermal treatment of an amorphous Ti precursor derived from the Ti-peroocomplex¹. By changing the pH in the synthesis medium, anatase particles of different morphologies may be produced and even titanate nanotubes in relatively mild pH conditions. Doping and heterostructure formation (with SnO₂ and V₂O₅) are easily attained in the same method, just changing experimental conditions (precursors, time and temperature treatment). Photodegradation experiments show that similar samples in morphology show similar photocatalytical behaviours when comparing identical surface areas, even showing different behaviours when comparing identical weight amounts. Titanates and the most elongated samples show worst photocatalytical performances, and photoluminescence experiments suggest that this low performance may be associated to the presence of defects originated from the growth mechanism, acting there as recombination centers. In fact, high resolution transmission electron microscopies show that the samples with high anisotropy present several defects related to oriented attachment growth mechanism. These results will be valuable in the comprehension and design of new photocatalytic processes for the treatment of pesticides and other organic contaminants in water.

Work supported by FAPESP, CNPq, CAPES, FINEP and Embrapa

[1] Ribeiro, C.; Barrado, C. M.; Camargo, E. R.; Longo, E.; Leite, E. R. Chemistry - A European Journal, 2009, 15, 2217-2222.

Corresponding autor: Caue Ribeiro, E-mail: caue@cnpdia.embrapa.br. Address: Rua Quinze de Novembro 1452, São Carlos, SP