

Symposium G

POSTER SESSION PG1 - MONDAY, OCTOBER 9

G501 - XAFS AND SAXS STUDIES OF THE INTERACTION OF DIFFERENT CAPPING POLYMERS WITH PLATINUM NANOPARTICLES

Matthias M. Koebel (LBNL Berkeley), Félix Gregorio Requejo (IFLP-INIFTA, UNLP Arg.), Aldo Félix Craievich (Inst. of Physics USP), José Martín Ramallo López (IFLP-INIFTA, UNLP Arg.), Lisandro Giovanetti (IFLP-INIFTA, UNLP Arg.), Michael Foxe (LBNL Berkeley), Louis Jones (LBNL Berkeley) and Gabor A. Somorjai (LBNL Berkeley)

Pt nanoparticles (NP) were synthesized by seeded growth and direct ethylene glycol reduction methods and stabilized with two different polymers: poly(vinylpyrrolidone) (PVP) and sodium polyacrylate (PAA-Na). The shape and size distribution of the NP was determined using transmission electron microscopy (TEM). Complementary, small angle X-ray scattering (SAXS) experiments were performed to estimate the average NP size and size distribution.

G503 - STUDY OF THE STRUCTURAL PROPERTIES OF THE PECVD SiOxNy DIELECTRIC LAYERS OBTAINED WITH DIFFERENT RF POWERS BY XANES AND EXAFS ANALYSIS

Marcia Fantini (Universidade de São Paulo), Kátia Franklin Albertin (Universidade de São Paulo) and Inés Pereyra (Universidade de São Paulo)

In this work, we produce and characterize SiO_xN_y films deposited from SiH₄, N₂O and He gaseous mixture, at 120 mTorr utilizing different RF powers (50,100 and 200 Watts), in order to analyze the effect of this deposition parameter on the structure of the films and on the effective charge density in MOS capacitors utilizing them as dielectric layer. These films were characterized by FTIR, RBS, XANES and EXAFS in Si-K Edge. The silicon/dielectric interface properties were obtained through the C vs. V characteristics of the fabricated MOS capacitors.

G505 - A STRUCTURAL STUDY OF AN AMORPHOUS CO₄₁Nb₅₉ ALLOY BY REVERSE MONTE CARLO METHOD

Thiane Oliveira Almeida (UFSC), Tarciso Antonio Grandi (UFSC), Carlos Maduro campos (UFSC), João Cardoso de Lima (UFSC), Sérgio Michielon de Souza (UFSC), Daniela Menegon Triches (UFSC) and Amanda Rodrigues Jeronimo (UFSC)

An amorphous Co₄₁Nb₅₉ alloy was produced by mechanical alloying technique and its atomic structure has been modeled using the reverse Monte Carlo method and one total structure factor S(K) as input data. The Fazer-Ziman S(K) factor was derived from the measured X-ray diffraction data after reabsorption and inelastic corrections. The diffraction data set was collected at the Laboratório Nacional de Luz Síncrotron – LNLS (Campinas, São Paulo), at the XPD2 beamline using a Si (1 1 1) monochromator with Ge (1 1 1) analyzer to eliminate spurious radiations such as fluorescent one.

G506 - IN SITU STUDY OF THE CRYSTALLIZATION OF NiO NANOPARTICLE BY XRPD AND XAS

Wladimir Hernandez Flores (UFC), Juliana Marcela Almeida (UFC), Cristiano Teles Meneses (UFC) and José Marcos Sasaki (UFC)

This work show a new procedures to control the growth and the formation of NiO nanoparticles. In situ X-ray Powder Diffraction (XRPD) and X-ray Absorption Spectroscopy (XAS) were used as a probe to follow the crystallization process of NiO nanoparticles

G509 - STUDY OF INTERACTIONS BETWEEN CYCLODEXTRIN-DNA COMPLEX AND DIOLEOYLPHOSPHATIDYLETHANOLAMINE BY DIFFERENTIAL SCANNING CALORIMETRY AND X-RAY DIFFRACTION

Rogério Magalhães-Paniago (UFMG/LNLS), Guinther Kellerman (LNLS), Jorge Luiz Pesquero (UFMG), Wânia da Silva Carvalho (UFMG), Berta Rolla Nunes (UFMG) and Mônica Cristina De Oliveira (UFMG)

The introduction of DNA into cells can be performed by pH-sensitive liposomes. The stability and transfection efficiency of these carriers depend of the supramolecular organization of its structural phospholipid (DOPE). We investigated the influence of pH-sensitive liposome constituents over the phase transitions of DOPE employing differential scanning calorimetry (DSC) and X-ray diffraction.

G510 - SYNCHROTRON BEAM LINE FOR PHOTON INDUCED GAS DESORPTION STUDIES

Maria Clara Ierardi (UNICAMP), Marcelo Juni Ferreira (LNLS), Rafael Molena Seraphim (LNLS/UNICAMP) and Antonio Jose Ramirez (LNLS)

The Brazilian Synchrotron Light Laboratory (LNLS) has engaged on the continuous improvement of the synchrotron radiation source since it was built back in the 90s. One of the key technical areas has been the ultrahigh vacuum system of the machine, because of its paramount effect on the beam lifetime. As part of this effort has been built a dedicated experimental station (beam-line) to study photon stimulated desorption (PSD). This beam-line provides a white beam to irradiate samples. Its pumping system allows the main chamber can attain pressures within the range of 1e-10 mbar. The studies performed at this new station will provide new insights into PSD within particle accelerators and storage rings.

G512 - X-RAY ABSORPTION STUDIES OF Pt-Fe NANOPARTICLE ELECTROCATALYSTS FOR PEMFC ANODES

Edson Antonio Ticianelli (Universidade de São Paulo) and Luis Gustavo da Silva Pereira (Universidade de São Paulo)

This work discusses the performance of proton exchange membrane fuel cell (PEMFC) operating with hydrogen containing 100ppm of carbon monoxide. A good electrocatalytic activity was observed for anodes formed by PtFe/C catalysts, which presented overpotential loss of 250 mV at 1 A cm⁻², compared to pure hydrogen. X-ray absorption experiments showed an enhancement of the Pt 23/2-5d white line, compared to the Pt/C, indicating that the Pt atoms present more vacant 5d electronic states in the PtFe/C catalyst. This may lead to a change of the Pt-CO bond energy in this catalyst as compared to Pt/C.

G513 - MANGANESE INCORPORATION INTO ORDERED MESOPOROUS SILICA WITH CAGE-LIKE CUBIC STRUCTURE BY DIRECT AND POST SYNTHESIS

Márcia Carvalho de Abreu Fantini (Instituto de Física, USP), Jivaldo do Rosário Matos (Instituto de Química, USP), Flávia Cheloni (Instituto de Física, USP) and Tereza Silva Martins (Instituto de Física, USP)

In this work the introduction of manganese into the FDU-1 structure has been studied. Incorporation of manganese into mesoporous silica was made by two processes, direct synthesis and grafting. The mesoporous materials were characterized by Small Angle X-ray Scattering (SAXS) and the diffraction peaks were indexed to (111), (220) and (311) reflections based on a face centered cubic structure, space group Fm3m. The results showed that both processes lead to well ordered mesoporous silica.

G515 - RUBBER NANOCOMPOSITE OF PDMS-GUM/MONTMORILLONITE SLURRY

Inez Valéria Pagotto Yoshida (Inst. Química, UNICAMP), Íris L. Torriani (Inst. Física, UNICAMP) and Manuela Andrade Kaneko (Inst. Química, UNICAMP)

A rubber nanocomposite was obtained from a montmorillonite slurry and a high molecular weight poly(dimethylsiloxane) (PDMS) by a compounding/molding process. The nanocomposite was characterized by small-angle/wide-angle X-ray scattering techniques. The scattering curve for the rubber nanocomposite showed that the peaks corresponding to large d-spacings of the clay slurry disappeared, indicating diffusion of the PDMS chains into the enlarged galleries of the clay slurry. The scattering profiles also showed that the morphology is formed by primary features associated with individual clay layers.

G516 - EXAFS STUDIES OF AGED GASE ALLOY PREPARED BY MECHANICAL ALLOYING

Tarciso Antonio Grandi (ufsc), João Cardoso de Lima (ufsc) and Carlos Eduardo M Campos (ufsc)

In the last four years Ga and Se mixtures, in compositions Ga₅₀Se₅₀ and Ga₄₀Se₆₀, were submitted to Mechanical Alloying and their structural properties were studied by XRD and EXAFS techniques. The results showed that the mechanical alloyed products were structurally different: the Ga₅₀Se₅₀ alloy shows an amorphous phase and the Ga₄₀Se₆₀ shows a nanocrystalline Ga₂Se₃ phase. The local atomic structure of the amorphous Ga₅₀Se₅₀ was studied by EXAFS in 2002 and now (2006) it is been re-examined. This presentation will show the first results on the structural evolution of the aged Ga₅₀Se₅₀ alloy.

G518 - QUANTITATIVE ANALYSIS OF TiO₂ POLYMORPHS OBTAINED BY SOL-GEL AND PRECIPITATION CHLORIDE METHODS BY RIETVELD METHOD

Renato Sanches Freire (IQ-USP/SP), Tereza Silva Martins (IF-USP/SP), Thiago Lewis Reis Hower (IQ-USP/SP), Elizabeth Fancio (IF-USP/SP) and Giancarlo Espósito de Souza Brito (IF-USP/SP)

TiO₂ exhibits three distinct polymorphs (anatase, rutile and brookite). Through out the years, TiO₂ has been the popular choice as semiconductor. The quantitative phase analysis by Rietveld method can be applied to determine the most photoactive crystalline phase, with highest precision

than traditional methods, for heterogeneous photocatalysis.

G519 - STRUCTURAL ANALYSIS OF ORDERED MESOPOROUS SILICA THIN FILMS DEPOSITED BY SPIN COATING

Giancarlo Espósito de Souza Brito (IF-USP/SP), Jivaldo do Rosário Matos (IQ-USP/SP), Tereza Silva Martins (IF-USP/SP), Elizabeth Fancio (IF-USP/SP) and Márcia Carvalho de Abreu Fantini (IF-USP/SP)

Thin films of cubic mesoporous silica FDU-1 were synthesized using the triblock copolymer Vorasurf* 504 (Dow Chemical Co.) as the structure-directing agent under acidic conditions. The films were deposited by spin coating on glass and stainless steel

G520 - TOPAZ AS MONOCHROMATOR FOR SYNCHROTRON LIGHT

Cesar Cusatis (UFPR) and Kelin Regina Tasca (UFPR)

Crystal monochromator for low energy synchrotron light should have high d spacing and the best possible structural quality. The purpose of this work is to determine the possibility of the use of topaz single crystals for these monochromators.

G521 - THE STRUCTURE OF LITHIUM IRON PHOSPHATE FILMS FOR MICRO-BATTERY APPLICATIONS

Giancarlo Espósito de Souza Brito (IF-USP), Márcia Carvalho de Abreu Fantini (IF-USP) and Manuel Alfredo Espinoza Sánchez (IF-USP)

LiFePO₄ films were deposited using sol-gel and dip coating process and characterized by ex-situ X-Ray Diffraction. The films were polarized in a lithium electrochemical medium, using Pt counter electrode and Ag reference electrode. At +1.5V vs. Ag applied potential the triphylite LiFePO₄ partially changes to heterosite FePO₄. At -1.0V vs. Ag the film returns to triphylite phase, showing a reversible electrochemical process.

G522 - EXAFS ANALYSIS ON SiOXNY FILMS

Inês Pereyra (POLI-USP), Marcia M. C. A. Fantini (IF-USP) and Denise Criado (POLI-USP)

In this work we present an Extended X-ray Absorption Fine Structure study of silicon oxynitride films deposited by PECVD technique, with chemical composition varying from SiO₂ to Si₃N₄ including also silicon-rich silicon oxynitride films, at the Si-K edge. We looked for the knowledge of the structural arrangement of these different chemical compositions of SiO_xN_y to understand the performance in optical and microelectronic applications. In particular we investigate the local order characteristics as coordination number of Si-O, Si-N and Si-Si bonds.

G527 - COMBINING SYNCHROTRON X-RAY TECHNIQUES FOR STUDYING NANOSTRUCTURED SEMICONDUCTOR DEVICES

Tomás Lamas (Instituto de Física - USP), Sérgio Morelhão (Instituto de Física - USP), André Perrotta (Instituto de Física - USP), Alain Quivy (Instituto de Física - USP) and Raul Oliveira Freitas (Instituto de Física

- USP)

In this work, series of samples representing the different growth stages of buried quantum dots (QDs) have been investigated. Ultra-accurate XRS, with further correction for Umweg peak asymmetries (consequence of a small anomalous dispersion effect) to achieve an accuracy below $10E-5$, provide information on the in-plane strain in the GaAs lattice. Pole figures, specular X-ray reflectivity, and atomic force microscopy are also used for general qualitative analysis of the growths, and of the morphology and density of the QDs.

G529 - SMALL - ANGLE X-RAY SCATTERING STUDY IN LIQUID CRYSTALS DROPS

Íris Torriani (LNLS), Nicole Raymonde Demarquette (Universidade de São Paulo) and Lincoln Silva Gomes (Universidade de São Paulo)

In this work, small-angle X-ray scattering (SAXS) using Synchrotron Radiation was used to investigate the presence of preferential orientation at the surface and in the bulk of pendant drops of low molar mass liquid crystals (LMMLCs) from the cyanoxybiphenyl (nOCB) series (7OCB and 8OCB) for temperatures in the proximity of the nematic-isotropic (TNI) and smetic – nematic (TsmN) transition temperatures. The purpose of this study was to understand the surface tension values of LMMLC obtained when using the pendant drop method.

G530 - SYNCHROTRON RADIATION TOTAL REFLECTION X-RAY FLUORESCENCE ANALYSIS OF SOIL SOLUTIONS IN CONTACT WITH METALLIC MATERIALS

Eduardo Almeida (CENA/USP), Ricardo Espindola Romero (UFC), Virgilio Nascimento Filho (CENA/USP), Sérgio Luis Jesus (ESALQ/USP) and Jesualdo Luiz Rossi (CNEN/IPEN)

Soil solutions from three types of soil obtained by centrifugation method were tested in metallic material to improve the understanding of how and in what intensity the corrosion attack occurs. TXRF is adequate since it permits the analysis of trace elements content in small amount of sample material sampling. Results suggest that other variables can be considered for the corrosion process in steel samples. SR-TXRF showed to be suitable to carry out qualitative as well as quantitative analysis of soil solution as an electrolyte, showing adequate analytical results and simple sample preparation

POSTER SESSION PG2 - TUESDAY, OCTOBER 10

G531 - NANOSCALE CONFORMATIONAL ORDERING ON POLY(ALKOXYANILINES): FRACTAL BEHAVIOR AND THIN FILMS FORMATION MECHANISM

Paulo Sérgio de Paula Herrmann (Embrapa), Yvonne Primerano Mascarenhas (USP), Igor Polikarpov (USP), Michel R. M. Ballesterio (USP), Mario de Oliveira Neto (USP), Fabio de Lima Leite (USP/Embrapa), Luiz Henrique Capparelli Mattoso (Embrapa) and Osvaldo Novais de Oliveira Jr (USP)

Poly(o-alkoxyanilines) contains hydrogen bonding acceptor sites, which allow construction of supramolecular and self-organization structures. Because of the diversity of chain conformations, which depend on various experimental parameters, obtaining structural features for POEA and other semiconducting polymers is a challenge. The film morphology was studied

using the fractal dimension concept whose features were corroborated by an analysis of SAXS measurements.

G535 - SOL-GEL DIP-COATED SnO₂ FILMS: POROSITY EVOLUTION FROM SAXS DURING IN-SITU CRYSTALLIZATION

CELSONO VALENTIM SANTILLI (IQ/UNESP), ALDO FELIX CRAIEVICH (IF/USP), CARLA AKIMI KAWAGUTI (IQ/UNESP) and SANDRA HELENA PULCINELLI (IQ/UNESP)

The kinetic exponents predicted by the statistical theory for the structure function of the porous material that exhibits a dynamical scaling property, suggest that the mechanism of porosity coarsening is controlled by surface diffusion. Films prepared with surfactant grafted nanoparticles present a more regular porous nanostructure.

G537 - CHARACTERIZATION OF SiC FILMS GROWN BY PECVD

Sebastião Gomes Santos (USP), Luiz Carlos Sandoval Goes, Marcos Massi (ITA) and Mariana Amorim Fraga (ITA)

Thin films of amorphous and polycrystalline silicon carbide (SiC) have attracted much attention during the last years for applications in microelectronic and optoelectronic devices. In this work, SiC films have been grown in PECVD reactor on thermally oxidized monocrystalline (100) silicon substrates followed by annealing in environment of N₂ at 1000°C. Annealed and unannealed SiC films were characterized by profilometry, X-Ray Diffraction (XRD) and RBS measurements. The influence of the post-deposition annealing on the structural properties of the grown SiC films were analyzed.

G538 - XAS INVESTIGATION ON THE REDUCTION OF COPPER(II) BY THE MINERAL CORE OF FERRITIN

Marcos Valluzzi (INIFTA-UNLP) and Marcelo Ceolin (INIFTA-UNLP)

Biomimetic synthesis of nanoscaled materials allow a high degree of control over morphology, phase distribution and composition of the product. Protein cages have been used for the synthesis of inorganic phases. Among them, the cavity of the protein ferritin was used for synthesis of oxide, semiconductor and metal particles. The mineralized form of ferritin was used as photocatalyst in redox reactions. In those reactions its ferrihydrite core act provides the electron-hole pairs involved in the reaction. In the present work we analyze the ferritin mediated photoreduction of aqueous Cu(II).

G542 - A STUDY OF THE INDUCED MAGNETISM IN THE CU SPACER LAYER OF NiO/Ni EXCHANGE BIAS

Elisa Baggio Saitovitch (CBPF), William Alayo Rodriguez (CBPF), Yutao Xing (CBPF), Valberto Pedruzzi Nascimento (CBPF), Miguel Tafur (CBPF) and William Brewer (FB Physik, FU Berlin)

The introduction of a non-magnetic layer into a simple magnetic system allows for the possibility of engineering its magnetic properties to be drastically different from bulk characteristics.

G543 - LOCAL STRUCTURE OF FEPT THIN FILMS INVESTIGATED BY POLARIZED X-RAY ABSORPTION SPECTROSCOPY

Aline Y. Ramos (Laboratoire Louis Néel), Narcizo Marques Souza-Neto (IF-USP and LNLS), Márcia C. A. Fantini (IF-USP), Rogério J. Prado (DRM, ICET, UFMT), Alessandro Martins (UFG, Campus Jataí) and Antonio D. Santos (IF-USP)

The structure of FePt films have been studied by X-ray Absorption Spectroscopy (XAS). The purpose of this work is quantify the local structural anisotropy, correlating with the macroscopic magnetic anisotropy of these films. In the XAS measurements, the sample orientation was varied with respect to the linearly polarized X-ray beam. This procedure allows obtaining more precise information about the local structure around the absorber atom. The results show that the short range chemical order inside the samples is highly dependent on the deposition procedure, growth temperature and substrate.

G544 - INFLUENCE OF THE ORGANIC-INORGANIC HYBRID MATRIX INTERACTIONS ON THE CONTROLLED ENCAPSULATION AND RELEASE OF DRUGS

Leandro Lopes (IQ-Unesp-Araraquara), Celso Valentim Santilli (IQ-Unesp-Araraquara), Leila Aparecida Chiavacci (IQ-Unesp-Araraquara), Eduardo Ferreira Molina (IQ-Unesp-Araraquara) and Sandra Helena Pulcinelli (IQ-Unesp-Araraquara)

The hydrophilic degree of polymer chains in organic-inorganic hybrid matrix is of paramount importance in drug delivery processes. The delivery rate could be controlled by changing either the nature or the size of the molecular polymer chain.

G546 - ZIRCONIA FIBBERS GROWTH BY SOL-GEL FROM LIQUID CRYSTAL TEMPLATES

Celso Valentim Santilli (IQ/Unesp), Eduardo Pena Santos (IQ/Unesp), Victor Hugo Vitorino Sarmento (IQ/Unesp), Fernanda Gabriel Freitas (IQ/Unesp) and Sandra Helena Pulcinelli (IQ/Unesp)

Self-organized mesophases prepared by using swollen liquid crystals (SLC) as templates allowed to zirconia fibbers as long as 20mm long. This approach constitutes a promising concept for the preparation of nanomaterials with controlled morphology.

G548 - SAXS, WAXS AND FTIR CHARACTERIZATION OF PVA HYDROGELS OBTAINED VIA GLUTARALDEHYDE CHEMICAL CROSSLINKING FOR BIOMEDICAL APPLICATIONS

Herman Sander Mansur (UFMG) and Alexandra Piscitelli Mansur (UFMG)

PVA is a synthetic water-soluble hydrophilic polymer. The basic properties of PVA are dependent on the degree of polymerization (DP) or on the degree of hydrolysis (GH). The aim of the present work was to investigate and characterize PVA hydrogels modified by glutaraldehyde chemical crosslinking through Synchrotron Small Angle X-Ray Scattering (SAXS), Wide Angle X-Ray Scattering (WAXS), and Fourier Transformed Infrared Spectroscopy (FTIR). FTIR spectra have shown major vibration bands associated with chemical groups present in the PVA chain.

G550 - NANOSTRUCTURAL AND LOCAL STUDY OF THE EFFECTS OF POLYCONDENSATION OF SILICION SPECIES ON THE STRUCTURAL FEATURES OF SILOXANE-PMMA HYBRIDS SOLS

Aldo Félix Craievich (IF/USP), Sandra Helena Pulcinelli (IQ/UNESP), Celso Valentim Santilli (IQ/UNESP), Victor Hugo Vitorino Sarmento (IQ/UNESP) and Karim Dahmouche (IQ/UNESP)

Siloxane-PMMA hybrids were prepared by the sol-gel process through hydrolysis and polycondensation of methacryloxypropyltrimethoxysilane (MPTS). The effects of water, MMA and methanol contents and of initial sol pH on the nanoscopic and local structural evolution during the polycondensation reactions was followed by Small Angle X-Ray Scattering (SAXS) and Nuclear Magnetic Resonance (NMR) spectroscopy. The SAXS patterns of all samples show the presence of an interference peak attributed to the scattering of spatially correlated silicon species present in the sol.

G551 - SAXS STUDY OF NANOSTRUCTURED THIN FILMS PREPARED BY PYROSOL DEPOSITION

Sandra Helena Pulcinelli (IQ/UNESP), Celso Valentim Santilli (IQ/UNESP), Victor Hugo Vitorino Sarmento (IQ/UNESP) and Peter Hammer (IQ/UNESP)

The effect of the experimental parameters, such as the precursor chemistry and the surfactant concentration used to prepare tin oxide films by the pyrosol process on the nanostructural properties was investigated by scanning electron microscopy (SEM) and small angle X-ray scattering (SAXS).

G554 - SECONDARY ION MASS SPECTROMETRY OF FROZEN GASES

Arnaldo Naves de Brito (LNLS), Manoel Gustavo Homem (LNLS), Gustavo Faraudo (PUC-RJ), Lucio Sartori Farenzena (PUC-RJ) and Enio Frota da Silveira (PUC-RJ)

The electronic sputtering of frozen gases (H₂O, CO, CO₂, N₂, O₂, NH₃ and Ar) is presented. The targets were bombarded by UV photons and MeV ions. Positive and negative secondary ions were measured as a function of the desorption agent and target properties.

G555 - STRUCTURAL INVESTIGATION ON THE WATER CORROSION OF FLUORZIRCONATE GLASSES AND THEIR PROTECTION BY A THIN TIN DIOXIDE FILM PREPARED BY THE SOL-GEL PROCESS

Celso Valentim Santilli (Instituto de Química /UN), Alessandro Pansanato Rizzato (Rhodia Poliamida e Espec), Peter Hammer (Instituto de Química /UN) and Sandra Helena Pulcinelli (Instituto de Química /UN)

Water corrosion of fluorozirconate glass and the corrosion protection efficiency of a SnO₂ film were studied by SEM, FTIR and XPS. Coated and non-coated glass was analyzed before and after water contact. For non-coated glass the surface undergoes a selective dissolution of the most soluble species inducing the formation of a new surface of ZrO₂F₅, BaF₂ and LaF₂ species. For the coated glass the water attack induces a filling of film nanopores by dissolved glass material and the formation of SnO_xF_y and ZrO_xF_y species. The resulting film acts as a diffusion barrier against the corrosion process.

G556 - MAGNETIC STRUCTURE OF SM₂IRIN₈ STUDIED BY X-RAY MAGNETIC SCATTERING AND HIGH MAGNETIC FIELDS

Jonathan C. Lang (APS-ANL), Pascoal Giglio Pagliuso (UNICAMP), Carlos Giles (UNICAMP), Raimundo Lora Serrano (UNICAMP), Cris Adriano (UNICAMP), George Srajer (APS-ANL), Claudio Mazzoli (ESRF) and Luigi Paolasini (ESRF)

We investigated the magnetic structure of Sm₂IrIn₈ by magnetic X-ray scattering with polarization analysis. Below $T_N=14.2$ K, $((2n+1)/2, k, l)$ reflections were observed consistent with an antiferromagnetic structure with a wave vector $=(1/2, 0, 0)$. Applied magnetic fields of up to 10T have small effects on the antiferromagnetic order of Sm₂IrIn₈ revealed by X-ray magnetic scattering. Whilst the magnetic wave vector $=(1/2, 0, 0)$ and the transition temperature remain unchanged the direction of Sm moments lying in the tetragonal ab plane change slightly after field cooling of the sample.

G557 - PROPAGATION-BASED X-RAY PHASE CONTRAST IMAGING OF LOW DENSITY MATERIALS USING CONVENTIONAL X-RAY SOURCES

Marcelo Gonçalves Honnicke (ESRF), Juliana Manica (ESRF), Cesar Cusatis (UFPR) and Edson Massayuki Kakuno (UFPR)

This work presents the preliminary results of propagation-based x-ray phase contrast imaging (PBI), using a conventional x-ray source applied to material science. Images with enhanced contrast on the edges of the sample are compared with its conventional absorption radiography.

G558 - CDZnTE GOLD CONTACT AND SURFACE ANALYSIS BY X-RAY DIFFRACTION

Edson Massayuki Kakuno (UFPR) and Irineu Mazzaro (UFPR)

CdZnTe is one of most promising material for Gamma- and X-ray detection at room temperature. The surface preparation is an important step for the detection construction. We report an x-ray diffraction characterization of the surface and gold contacts, using x-ray grazing incidence.

G559 - RESIDUAL STRESS MEASUREMENT WITH SYNCHROTRON RADIATION IN THE LNLS

Eduardo Granado (Lab. Nac. de Luz Síncrotr) and Roosevelt Droppa Jr. (Lab. Nac. de Luz Síncrotr)

A project of a dedicated facility for residual stress measurement by x-ray diffraction using synchrotron radiation is being developed in the XRD1 beamline of the Laboratório Nacional de Luz Síncrotron – LNLS. Some results obtained until now as well as some future perspectives are presented.

G562 - SMALL-ANGLE X-RAY SCATTERING AND FTIR CHARACTERIZATION OF NANOSTRUCTURED POLY (VINYL ALCOHOL)/SILICATE HYBRIDS FOR IMMUNOASSAY APPLICATIONS

Alexandra Mansur (UFMG), Edel Barbosa-Stancioli (UFMG), Giovanna Andrade (UFMG) and Herman Mansur (UFMG)

The aim of this study was the development and characterization of novel silane modified hybrid materials based on PVA, evaluate their application

as an immunoassay test for future potential as biosensors. PVA modified by silanes were synthesized and characterized through Synchrotron Small Angle X-Ray Scattering and Fourier Transformed Infrared Spectroscopy. SAXS measurements were performed from PVA hybrid films using the beam line of the National Synchrotron Light Laboratory (Campinas, Brazil). SAXS results have indicated different nano-ordered disperse phases for PVA PVA/silane hybrids.

G563 - STRUCTURAL PROPERTIES OF SILVER NANOWIRES IN ANODIC ALUMINA MEMBRANES GROWN BY ELECTROCHEMICAL AND ELECTROLESS TECHNIQUE

Celso Valentim Santilli (Instituto de Química /UN), Sandra Helena Pulcinelli (Instituto de Química /UN), Peter Hammer (Instituto de Química /UN), Roberto Bertholdo (Instituto de Química /UN), Hebe de las Mercedes Villullas (Instituto de Química /UNI) and Renato Vessecchi Lourenço (Instituto de Química /UN)

Silver nanowires with high aspect ratio were grown in the nanochannels of ANOPORE, alumina membranes using potentiostatic electrodeposition and the eletroless deposition method. For both techniques the growth mechanism and structural perfection of the nanotubes in the alumina matrix was investigated by scanning electron microscopy and small angle X-ray scattering.