Abstracta

Abr-14

UNICAMP

IFGW

Trabalhos Publicados

[P076-2014] "Comparison of Geant4-DNA simulation of S--values with other Monte Carlo codes"

Andre, T.; Morini, F.; Karamitros, M.; Delorme, R.; Le Loirec, C.; Campos, L.; Champion, C.; Groetz, J. E.; Fromm, M.; Bordage, M. C.; Perrot, Y.; Barberet, P.; **Bernal, M. A.***; Brown, J. M. C.; Deleuze, M. S.; Francis, Z.; Ivanchenko, V.; Mascialino, B.; Zacharatou, C.; Bardies, M.; Incerti, S.

Monte Carlo simulations of S-values have been carried out with the Geant4-DNA extension of the Geant4 toolkit. The S-values have been simulated for monoenergetic electrons with energies ranging from 0.1 key up to 20 keV, in liquid water spheres (for four radii, chosen between 10 nm and 1 mu m), and for electrons emitted by five isotopes of iodine (131, 132, 133, 134 and 135), in liquid water spheres of varying radius (from 15 mu m up to 250 mu m). The results have been compared to those obtained from other Monte Carlo codes and from other published data. The use of the Kolmogorov-Smirnov test has allowed confirming the statistical compatibility of all simulation results.

[P077-2014] "Designing nanoscaled hybrids from atomic layered boron nitride with silver nanoparticle deposition"

Gao, G. H.; Mathkar, A.; **Martins, E. P.*; Galvao, D. S.***; Gao, D. Y.; **Autreto, P. A. D.***; Sun, C. J.; Ajayan, P. M.

We have developed a microwave assisted one-pot approach to fabricate a novel hybrid nano-composite composed of two-dimensional chemically exfoliated layered hexagonal boron nitride (h-BN) and embedded silver nanoparticles (SNP). Atomic layered h-BN exfoliated using chemical liquid showed strong in-plane bonding and weak van der Waals interplanar interactions, which is utilized for chemically interfacing SNP, indicating their ability to act as excellent nano-scaffolds. The SNP/h-BN optical response, in particular band gap, is strongly dependent on the concentration of the metallic particles. In order to gain further insight into this behavior we have also carried out ab initio density functional theory (DFT) calculations on modeled structures, demonstrating that the bandgap value of SNP/h-BN hybrids could be significantly altered by a small percentage of OH- groups located at dangling B and N atoms. Our results showed that these novel SNP/h-BN nanohybrid structures exhibited excellent thermal stability and they are expected to be applied as devices for thermal oxidation-resistant surface enhanced Raman spectroscopy (SERS). The SNP/h-BN membrane showed remarkable antibacterial activity, suggesting their potential use in water disinfection and food packaging.

[P078-2014] "Determination of the top-quark pole mass and strong coupling constant from the t(t)over-bar production cross section in pp collisions at root s=7 TeV"

Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; Tumasyan, A.; **Chinellato, J.*; Tonelli Manganote, E. J.***; et al.
CMS Collaboration

The inclusive cross section for top-quark pair production measured by the CMS experiment in protonproton collisions at a center-of-mass energy of 7 TeV is compared to the QCD prediction at next-to-next-to-leading order with various parton distribution functions to determine the top-quark pole mass,$m_{(t)}$(pole), or the strong coupling constant, alpha(S). With the parton distribution function set NNPDF2.3, a pole mass of 176.7(-3.4)(+3.8) GeV is obtained when constraining alpha(S) at the scale of the Z boson mass, m(Z), to the current world average. Alternatively, by constraining m(t)(pole) to the latest average from direct mass measurements, a value of alpha(S)(m(Z)) = 0.1151(-0.0032)(+0.0033) is extracted. This is the first determination of alpha(S) using events from top-quark production.

[P079-2014] "Development of a non-viral gene delivery vector based on the dynein light chain Rp3 and the TAT peptide"

Favaro, T. P.; de Toledo, M. A. S.; Alves, R. F.; Santos, C. A.; Beloti, L. L.; **Janissen, R.***; de la Torre, G.; Souza, A. P.; Azzoni, A. R.

Gene therapy and DNA vaccination trials are limited by the lack of gene delivery vectors that combine efficiency and safety. Hence, the development of modular recombinant proteins able to mimic mechanisms used by viruses for intracellular trafficking and nuclear delivery is an important strategy. We designed a modular protein (named T-Rp3) composed of the recombinant human dynein light chain Rp3 fused to an N-terminal DNA-binding domain and a C-terminal membrane active peptide, TAT. The T-Rp3 protein was successfully expressed in Escherichia coli and interacted with the dynein intermediate chain in vitro. It was also proven to efficiently interact and condense plasmid DNA, forming a stable, small (similar to 100 nm) and positively charged (+28.6 mV) complex. Transfection of HeLa cells using T-Rp3 revealed that the vector is highly dependent on microtubule polarization, being 400 times more efficient than protamine, and only 13 times less efficient than Lipofectamine 2000 (TM), but with a lower cytotoxicity. Confocal laser scanning microcopy studies revealed perinuclear accumulation of the vector, most likely as a result of transport via microtubules. This study contributes to the development of more efficient and less cytotoxic proteins for non-viral gene delivery.

[P080-2014] "Disorder in quantum critical superconductors"

Seo, S.; Lu, X.; Zhu, J. X.; **Urbano, R. R.***; Curro, N.; Bauer, E. D.; Sidorov, V. A.; Pham, L. D.; Park, T.; Fisk, Z.; Thompson, J. D.

In four classes of materials the layered copper oxides, organics, iron pnictides and heavy-fermion compounds an unconventional superconducting state emerges as a magnetic transition is tuned towards absolute zero temperature, that is, towards a magnetic quantum critical point(1) (QCP). In most materials, the QCP is accessed by chemical substitution or applied pressure. CeColn(5) is one of the few materials that are 'born' as a quantum critical superconductor(2-4) and, therefore, offers the opportunity to explore the consequences of chemical disorder. Cadmium-doped crystals of CeColn(5) are a particularly interesting case where Cd substitution induces long-range magnetic order(5), as in Zn-doped copper oxides(6,7). Applied pressure globally suppresses the Cd-induced magnetic order and restores bulk superconductivity. Here we show, however, that local magnetic correlations, whose spatial extent decreases with applied pressure, persist at the extrapolated QCP. The residual droplets of impurity-induced magnetic moments prevent the reappearance of conventional signatures of quantum criticality, but induce a heterogeneous electronic state. These discoveries show that spin droplets can be a source of electronic heterogeneity and emphasize the need for caution when interpreting the effects of tuning a correlated system by chemical substitution.

[P081-2014] "Effect of diacylglycerol addition on crystallization properties of pure triacylglycerols"

Silva, R. C.; Soares, F. A. S. D.; Maruyama, J. M.; Dagostinho, N. R.; Silva, Y. A.; **Calligaris, G. A.***; Ribeiro, A. P. B.; **Cardoso, L. P.***; Gioielli, L. A.

The objective of this study was to investigate the effects of blending triacylglycerols (TAGs) and diacylglycerols (DAGs) on the melting and crystallization properties in a fat system. To this end, differential scanning calorimetry (DSC), X-ray diffraction (XRD) and polarized light microscopy (PLM) methods were used. Different DAGs (diolein-OO, dipalmitin PP and distearin-SS) were added at 5% to each TAG (triolein-OOO, tripalmitin-PPP and tristearin-SSS). DSC results showed that the addition of DAGs delayed the onset of crystallization of saturated TAGs (PPP and SSS). By contrast, the addition of DAGs to unsaturated TAG (OOO) accelerated the onset of crystallization, with the appearance of an extra crystallization peak upon the addition of SS and PP. PLM results revealed that the addition of OO affected the polymorphic transition of the TAGs studied findings were consistent with DSC melting curves and XRD results.

[P082-2014] "Elastic scattering of low-energy electrons by BF3"

Pastega, Diego F.; da Costa, R. F.; **Lima, M. A. P.***; Bettega, M. H. F.

We present integral, differential and momentum transfer cross sections for elastic scattering of low-energy electrons by boron trifluoride molecules. The cross sections were obtained with the Schwinger multichannel method implemented with pseudopotentials. The calculations were performed in the static-exchange and in the static-exchange-polarization approximations for energies from 0.1 to 10 eV. Our results indicate that BF3 has a shape resonance in the B (2) symmetry located at around 3.5 eV, in agreement with the experimental measurements of 3.8 eV, 3.54 eV and of 3.6 eV reported by [M. Tronc et al., J. Phys. B 15, L253 (1982)], by [J.A. Tossell et al., Int. J. Quantum Chem. 29, 1117 (1986)] and by [C. Szmytkowski et al., J. Chem. Phys. 121, 1790 (2004)] respectively. We also report a Ramsauer-Townsend minimum at around 0.7 eV, in conformity with the observations of [S.R. Hunter et al., J. Appl. Phys. 65, 1858 (1989); Z. NikitoviA double dagger et al., Acta Phys. Polon. A 117, 748 (2010)], and [P.X. Hien et al., J. Phys. Soc. Jpn 82, 034301 (2013)]. Our elastic integral cross section is compared with calculated elastic cross sections of [J.A. Tossell et al., Int. J. Quantum Chem. 29, 1117 (1986)] and of [M. RadmiloviA double dagger-RadjenoviA double dagger et al., Publ. Astron. Obs. Belgrade 84, 57 (2008)] and with the experimental total cross section data of [C. Szmytkowski et al., J. Chem. Phys. 121, 1790 (2004)]. Although all these studies reported the presence of the shape resonance, there are some discrepancies in the magnitude and shape among the cross sections.

[P083-2014] "Energy Dependence of Moments of Net-Proton Multiplicity Distributions at RHIC"

Adamczyk, L.; Adkins, J. K.; Agakishiev, G.; Aggarwal, M. M.; **de Souza, R. Derradi***; **Takahashi, J.***; **Vasconcelos, G. M. S.***; et al.
STAR Collaboration

We report the beam energy (root S-NN = 7.7-200 GeV) and collision centrality dependence of the mean (M), standard deviation (sigma), skewness (S), and kurtosis (kappa) of the net-proton multiplicity distributions in Au + Au collisions. The measurements are carried out by the STAR experiment at midrapidity (vertical bar y vertical bar < 0.5) and within the transverse momentum range 0.4 < p(T) < 0.8 GeV/c in the first phase of the Beam Energy Scan program at the Relativistic Heavy Ion Collider. These measurements are important for understanding the quantum chromodynamic phase diagram. The products of the moments, S sigma and K sigma(2), are sensitive to the correlation length of the hot and dense medium created in the collisions and are related to the ratios of baryon number susceptibilities of corresponding orders. The products of moments are found to have values significantly below the Skellam expectation and close to expectations based on independent proton and antiproton production. The measurements are compared to a transport model calculation to understand the effect of acceptance and baryon number conservation and also to a hadron resonance gas model.

[P084-2014] "Enhancement of Atom-Field Transfer of Coherence in a Two-Photon Micromaser Assisted by a Classical Field"

Gomes, A. F.; **Vidiella-Barranco, A.***

We investigate the transfer of coherence from atoms to a cavity field initially in a statistical mixture within a two-photon micromaser arrangement. The field is progressively modified from a maximum entropy state (thermal state) towards an almost pure state (entropy close to zero) due to its interaction with atoms sent across the cavity. We trace over the atomic variables, i.e., the atomic states are not measured and recorded by a detector after they leave the cavity. We show that by applying an external classical driving field it is possible to substantially increase the field purity without the need of previously preparing the atoms in a superposition of their energy eigenstates. We also discuss some of the nonclassical statistical properties of the resulting field.

[P085-2014] "Frequency comb expansion based on optical feedback, highly nonlinear and erbium-doped fibers"

Melo, S. A. S.; do Nascimento, A. R.; Cerqueira A. S.; Carvalho, L. H. H.; Pataca, D. M.; Oliveira, J. C. R. F.; **Fragnito, H. L.***

This works presents an efficient technique for generating multi-wavelength sources, which consist of an expanded optical frequency comb based on the nonlinear process of multiple four-wave mixing. The nonlinear efficiency is significantly enhanced by the use of the proposed scheme based on optical feedback, highly nonlinear and erbium-doped fibers. Numerical and experimental results illustrate its efficiency and applicability by expanding a comb from 20 to over 200 coherent lines spaced by only 12.5 GHz.

[P086-2014] "J/psi production and nuclear effects in p-Pb collisions at=5.02 TeV"

Abelev, B.; Adam, J.; Adamova, D.; Adare, A. M.; Aggarwal, M. M.; **Chinellato, D. D.***; **Dash, A.***; **Takahashi, J.***; et al.

ALICE Collaboration

Inclusive J/psi production has been studied with the ALICE detector in p-Pb collisions at the nucleon-nucleon center of mass energy = 5.02 TeV at the CERN LHC. The measurement is performed in the center of mass rapidity domains 2.03 < y (cms) < 3.53 and -4.46 < y (cms) < -2.96, down to zero transverse momentum, studying the mu (+) mu (-) decay mode. In this paper, the J/psi production cross section and the nuclear modification factor R (pPb) for the rapidities under study are presented. While at forward rapidity, corresponding to the proton direction, a suppression of the J/psi yield with respect to binary-scaled pp collisions is observed, in the backward region no suppression is present. The ratio of the forward and backward yields is also measured differentially in rapidity and transverse momentum. Theoretical predictions based on nuclear shadowing, as well as on models including, in addition, a contribution from partonic energy loss, are in fair agreement with the experimental results.

[P087-2014] "Magnetic structure of R2CoGa8 (R = Gd, Tb, and Dy): Structural tuning of magnetic properties in layered Ga-based intermetallic compounds"

Mardegan, J. R. L.*; Adriano, C.*; Vescovi, R. F. C.*; Faria, G. A.*; Pagliuso, P. G.*; Giles, C.*

In this work we have determined the magnetic structure of R2CoGa8 (R = Gd, Tb, and Dy) intermetallic compounds using x-ray resonant magnetic scattering in order to study the evolution of the anisotropic magnetic properties along the series for R = Gd-Tm. The three compounds have a commensurate antiferromagnetic spin structure with a magnetic propagation vector (tau) over right arrow = (1/2, 1/2, 1/2) and a Neel temperature of approximately 20, 28.5, and 15.2 K for R = Gd, Tb, and Dy, respectively. The critical exponent beta obtained from the temperature dependence of the magnetic peaks suggest a three-dimensional universality class for the three compounds. Comparing the simulated and integrated intensities we conclude that the magnetic moment direction is in the ab plane for the Gd2CoGa8 compound and parallel to the c axis for the Tb2CoGa8 and Dy2CoGa8 compounds. The evolution of the magnetic properties of the R2CoGa8 series for R = Gd-Tm is discussed taking into account the indirect Ruderman-Kittel-Kasuya-Yoshida interaction and crystalline--electric field effects. The comparison between the reported magnetic properties of the Ga-based compounds with those for the In-based isostructural family reveals differences in their exchange couplings that contribute to the understanding of the role of the f-electronmagnetism in these classes of materials.

[P088-2014] "Measurement of Higgs boson production and properties in the WW decay channel with leptonic final states"

Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; Tumasyan, A.; **Chinellato, J.*; Manganote, E. J. Tonelli***; et al.
CMS Collaboration

A search for the standard model Higgs boson decaying to a W-boson pair at the LHC is reported. The event sample corresponds to an integrated luminosity of 4.9 fb(-1) and 19.4 fb(-1) collected with the CMS detector in pp collisions at = 7 and 8 TeV, respectively. The Higgs boson candidates are selected in events with two or three charged leptons. An excess of events above background is observed, consistent with the expectation from the standard model Higgs boson with a mass of around 125 GeV. The probability to observe an excess equal or larger than the one seen,

under the background-only hypothesis, corresponds to a significance of 4.3 standard deviations for m (H) = 125.6 GeV. The observed signal cross section times the branching fraction to WW for m (H) = 125.6 GeV is times the standard model expectation. The spin-parity J (P) = 0(+) hypothesis is favored against a narrow resonance with J (P) = 2(+) or J (P) = 0(-) that decays to a W-boson pair. This result provides strong evidence for a Higgs-like boson decaying to a W-boson pair.

[P89-2014] "Measurement of the ratio of the inclusive 3-jet cross section to the inclusive 2-jet cross section in pp collisions at root s=7 TeV and first determination of the strong coupling constant in the TeV range"

Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; Tumasyan, A.; **Chinellato, J.*; Tonelli Manganote, E. J.***; et al.
CMS Collaboration

A measurement is presented of the ratio of the inclusive 3-jet cross section to the inclusive 2-jet cross section as a function of the average transverse momentum, < p(T1,2)>, of the two leading jets in the event. The data sample was collected during 2011 at a proton-proton centre-of-mass energy of 7 TeV with the CMS detector at the LHC, corresponding to an integrated luminosity of 5.0 fb(-1). The strong coupling constant at the scale of the Z boson mass is determined to be alpha(S)(M-Z) = 0.1148 +/- 0.0014 (exp.) +/- 0.0018 (PDF) +/- 0.0050 (theory), by comparing the ratio in the range 0.42 < < p(T1,2)> < 1.39 TeV to the predictions of perturbative QCD at next-to-leading order. This is the first determination of alpha(S)(M-Z) from measurements at momentum scales beyond 0.6 TeV. The predicted ratio depends only indirectly on the evolution of the parton distribution functions of the proton such that this measurement also serves as a test of the evolution of the strong coupling constant. No deviation from the expected behaviour is observed.

[P090-2014] "Measurement of the t(t)over-bar production cross section in the dilepton channel in pp collisions at root s=8 TeV"

Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; Tumasyan, A.; **Chinellato, J.*; Tonelli Manganote, E. J.***; et al.
CMS Collaboration

The top-antitop quark (t (t) over bar) production cross section is measured in proton-proton collisions at root s = 8 TeV with the CMS experiment at the LHC, using a data sample corresponding to an integrated luminosity of 5.3 fb(-1). The measurement is performed by analysing events with a pair of electrons or muons, or one electron and one muon, and at least two jets, one of which is identified as originating from hadronisation of a bottom quark. The measured cross section is 239 +/- 2 (stat.) +/- 11 (syst.) +/- 6 (lum.) pb, for an assumed top-quark mass of 172.5 GeV, in agreement with the prediction of the standard model.

[P091-2014] "Multi-strange baryon production at mid-rapidity in Pb-Pb collisions at root s(NN)=2.76 TeV"

Abelev, B.; Adam, J.; Adamova, D.; Adare, A. M.; **Chinellato, D. D.*; Dash, A.*; Takahashi, J.***; et al.
ALICE Collaboration

The production of Xi(-) and Omega(-) baryons and their anti-
-particles in Pb-Pb collisions root s(NN) = 2.76 TeV has been
measured using the ALICE detector. The transverse momentum
spectra at mid-rapidity (vertical bar y vertical bar < 0.5) for
charged Xi and Omega hyperons have been studied in the range
0.6 < P-T < 8.0 GeV/c and 1.2 < p(T) < 7.0 GeV/c, respectively,
and in several centrality intervals (from the most central 0-.10%
to the most peripheral 60-80% collisions). These spectra have
been compared with the predictions of recent hydrodynamic
models. In particular, the Krakow and EPOS models give a satis-
factory description of the data, with the latter covering a wider
P-T range. Mid-rapidity yields, integrated over p(T), have been
determined. The hyperon-to-pion ratios are similar to those at
RHIC: they rise smoothly with centrality up to < N-part > simi-
lar to 150 and saturate thereafter. The enhancements (yields
per participant nucleon relative to those in pp collisions) incre-
ase both with the strangeness content of the baryon and with
centrality, but are less pronounced than at lower energies.

**[P092-2014] "Multiplicity dependence of pion, kaon, proton
and lambda production in p-Pb collisions at root s(NN)=5.02
TeV"**

Abelev, B.; Adam, J.; Adamova, D.; Adare, A. M.; **Dash, A.***;
Takahashi, J.*; et al.
ALICE Collaboration

In this Letter, comprehensive results on pi(+/-), K-+/-, K-S(0),
p((p) over bar) and A((A) over bar) production at mid-rapidity (0 <
y(CMS) < 0.5) in p-Pb collisions at root s(NN) = 5.02 TeV, measured
by the ALICE detector at the LHC, are reported. The transverse
momentum distributions exhibit a hardening as a function of
event multiplicity, which is stronger for heavier particles. This
behavior is similar to what has been observed in pp and Pb-Pb
collisions at the LHC. The measured pr distributions are compa-
red to d-Au, Au-Au and Pb-Pb results at lower energy and with
predictions based on QCD-inspired and hydrodynamic models.

**[P093-2014] "Neutral pion cross section and spin asymme-
tries at intermediate pseudorapidity in polarized proton
collisions at root s=200 GeV"**

Adamczyk, L.; Adkins, J. K.; Agakishiev, G.; Aggarwal, M. M.;
**Derradi de Souza, R.*; Takahashi, J.*; Vasconcelos, G. M.
S.***; et al.
STAR Collaboration

The differential cross section and spin asymmetries for neutral
pions produced within the intermediate pseudorapidity range
0.8 < eta < 2.0 in polarized proton-proton collisions at root s =
200 GeV are presented. Neutral pions were detected using the
end cap electromagnetic calorimeter in the STAR detector at
RHIC. The cross section was measured over a transverse mo-
mentum range of 5 < p(T) < 16 GeV/c and is found to agree with
a next-to-leading order perturbative QCD calculation. The lon-
gitudinal double-spin asymmetry A(LL) is measured in the same
pseudorapidity range and spans a range of Bjorken-x down to x
approximate to 0.01. The measured A(LL) is consistent with mo-
del predictions for varying degrees of gluon polarization. The
parity-violating asymmetry A(L) is also measured and found to
be consistent with zero. The transverse single-spin asymme-
try A(N) is measured over a previously unexplored kinematic
range in Feynman-x and p(T). Such measurements may aid our
understanding of the onset and kinematic dependence of the
large asymmetries observed at more forward pseudorapidi-
ty (eta approximate to 3) and their underlying mechanisms.

The A(N) results presented are consistent with a twist-3 model pre-
diction of a small asymmetry over the present kinematic range.

**[P094-2014] "Optical and electrical control of spin polariza-
tion of two-dimensional hole gases in p-type resonant tun-
nelling devices"**

Galeti, H. V. A.; Bezerra, A. T.; Galvao Gobato, Y.; **Brasil, M. J.
S. P.***; Taylor, D.; Henini, M.

In this work, we have investigated the spin polarization from
two-dimensional hole gases (2DHG) formed in p-i-p GaAs/AlAs
resonant tunnelling diodes (RTDs) under magnetic field parallel
to the tunnel current. We have observed that the polarization
degree from the quantum well (QW) and the 2DHG formed at the
accumulation layer is highly voltage and light sensitive and exhi-
bits a clear sign inversion. Our results indicate that the voltage
dependence of the QW polarization degree is mainly due to an
efficient hole-resonant tunnelling process through spin states of
the QW. On the other hand, the voltage dependence of the 2DHG
polarization degree seems to be dependent on the hole density
which is controlled by the applied voltage across the RTDs.

**[P095-2014] "Optical and spectroscopic characterization of
Er3+-Yb3+ co-doped tellurite glasses and fibers"**

Narro-Garcia, R*; Desirena, H.; **Chillcce, E. F.*; Barbosa, L.
C.***; Rodriguez, E.; De la Rosa, E.

Optical and spectroscopic properties of Er3+-Yb3+ co-doped
TeO2-WO3-Nb2O5-Na2O-Al2O3 glasses and fibers were investi-
gated. Emission spectra and fluorescence lifetimes of I-4(13/2)
level of Er3+ ion as a function of rare earth concentration and
fiber length were measured in glasses. Results show that the
self-absorption effect broadens the spectral bandwidth of
I-4(13/2)-> I-4(15/2) transition and lengthens the lifetime sig-
nificantly from 3.5 to 4.6 ms. Fibers, were fabricated by the
rod-in-tube technique using a Heathway drawing tower. The
emission power of these Er3+-Yb3+ co-doped Step Index Telluri-
te Fibers (SITFs; lengths varying from 2 to 60 cm) were genera-
ted by a 980 nm diode laser pump and then the emission power
spectra were acquired with an OSA. The maximum emission
power spectra, within the 1530-1560 nm region, were observed
for fiber lengths ranging from 3 to 6 cm. The highest bandwidth
obtained was 108 nm for 8 cm fiber length around 1.53 um.

**[P096-2014] "Origin of long-range azimuthal correlations in
hadronic collisions"**

Torrieri, G.*

I review the models suggested to date as an explanation for
the so-called "ridge" phenomenon: an elongation in rapidity
of two-particle correlations seen at energies of the BNL Relati-
vistic Heavy Ion Collider and the CERN Large Hadron Collider. I
argue that these models can be divided into two phenomeno-
logically distinct classes: "Hotspot + flow"-driven correlations,
where initial-state correlations created by structures local in
configuration space are collimated by transverse flow, and
models where the azimuthal correlation is created through lo-
cal partonic interactions in a high-gluon-density initial state.

I argue that the measurement of a strong double ridge in pA and dA collisions allows a good opportunity to understand the ridge's origin because it allows us to see if a common Knudsen number scaling, which is expected if the ridge has a hydrodynamic origin, can be used to understand all data. I show that current data present evidence that this scaling is lacking, which presents a challenge to the hydrodynamic models. On the other hand, particle-identified correlations are a particularly promising way of testing the assumption that distinguishes the two models; namely, of whether the correlation is formed initially in the partonic phase, or as a final-state effect. Assuming fragmentation occurs "as in vacuum" can be used to predict scaling trends which are generally broken by models, such as hydrodynamics, where the ridge is created as a final-state effect. While evidence is again not fully conclusive, data do seem to follow a scaling compatible with hydrodynamics [Phys. Rev. Lett. 111, 172303 (2013)]. I close by discussing experimental observables capable of clarifying the situation.

[P097-2014] "Pressure-induced transformations in amorphous silicon: A computational study"

Garcez, K. M. S.; **Antonelli, A.***

We study the transformations between amorphous phases of Si through molecular simulations using the environment dependent interatomic potential (EDIP) for Si. Our results show that upon pressure, the material undergoes a transformation from the low density amorphous (LDA) Si to the high density amorphous (HDA) Si. This transformation can be reversed by decompressing the material. This process, however, exhibits clear hysteresis, suggesting that the transformation LDA <-> HDA is first-order like. The HDA phase is predominantly five-fold coordinated, whereas the LDA phase is the normal tetrahedrally bonded amorphous Si. The HDA phase at 400 K and 20 GPa was submitted to an isobaric annealing up to 800 K, resulting in a denser amorphous phase, which is structurally distinct from the HDA phase. Our results also show that the atomic volume and structure of this new amorphous phase are identical to those of the glass obtained by an isobaric quenching of the liquid in equilibrium at 2000 K and 20 GPa down to 400 K. The similarities between our results and those for amorphous ices suggest that this new phase is the very high density amorphous Si.

[P098-2014] "Quasi-static magnetic measurements to predict specific absorption rates in magnetic fluid hyperthermia experiments"

Coral, D. F.; Zelis, P. M.; de Sousa, M. E.; **Muraca, D.***; Lassalle, V.; Nicolas, P.; Ferreira, M. L.; van Raap, M. B. F.

In this work, the issue on whether dynamic magnetic properties of polydispersed magnetic colloids modeled using physical magnitudes derived from quasi-static magnetic measurement can be extrapolated to analyze specific absorption rate data acquired at high amplitudes and frequencies of excitation fields is addressed. To this end, we have analyzed two colloids of magnetite nanoparticles coated with oleic acid and chitosan in water displaying, under a radiofrequency field, high and low specific heat power release. Both colloids are alike in terms of liquid carrier, surfactant and magnetic phase composition but differ on the nanoparticle structuring. The colloid displaying low specific dissipation consists of spaced magnetic nanoparticles of mean size around 4.8 nm inside a large chitosan particle of 52.5 nm.

The one displaying high specific dissipation consists of clusters of magnetic nanoparticles of mean size around 9.7nm inside a chitosan particle of 48.6 nm. The experimental evaluation of Neel and Brown relaxation times (similar to 10(-10) s and 10(-4) s, respectively) indicate that the nanoparticles in both colloids magnetically relax by Neel mechanism. The isothermal magnetization curves analysis for this mechanism show that the magnetic nanoparticles behave in the interacting superparamagnetic regime. The specific absorption rates were determined calorimetrically at 260 kHz and up to 52 kA/m and were well modeled within linear response theory using the anisotropy density energy retrieved from quasi-static magnetic measurement, validating their use to predict heating ability of a given polydispersed particle suspension. Our findings provide new insight in the validity of quasi-static magnetic characterization to analyze the high frequency behavior of polydispersed colloids within the framework of the linear response and Wohlfarth theories and indicate that dipolar interactions play a key role being their strength larger for the colloid displaying higher dissipation, i.e., improving the heating efficiency of the nanoparticles for magnetic fluid hyperthermia.

[P099-2014] "Raman scattering in the magnetically frustrated double perovskite Sr2YRuO6"

Garcia-Flores, A. F.*; **Terashita, H.***; Bittar, E. M.; Jardim, R. F.; **Granado, E.***

The spin correlations and excitations of the Sr2YRuO6 double perovskite are investigated by means of Raman scattering, complemented by synchrotron X-ray diffraction measurements. Anomalous softening of a breathing mode of the oxygen octahedra is observed below similar to 200K, much above the long-range antiferromagnetic ordering temperature, T-N1=32K, due to a spin-phonon coupling mechanism in the presence of magnetic correlations. A diffusive Raman signal is also observed, possibly associated with spin excitations within magnetically correlated regions. Our results point to a characteristic energy and temperature scale of similar to 25meV/200K below which unusual behavior associated with magnetic correlations is observed in this material.

[P100-2014] "Search for the standard model Higgs boson produced in association with a W or a Z boson and decaying to bottom quarks"

Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; **Manganote, E. J. Tonelli***; et al.
Autor(es) grupo: CMS Collaboration

A search for the standard model Higgs boson (H) decaying to b (b) over bar when produced in association with a weak vector boson (V) is reported for the following channels: W(mu nu)H, W(e nu)H, W(tau nu)H, Z(mu mu)H, Z(ee)H and Z(nu nu)H. The search is performed in data samples corresponding to integrated luminosities of up to 5.1 inverse femtobarns at root s = 7 TeV and up to 18.9 fb(-1) at root s = 8 TeV, recorded by the CMS experiment at the LHC. An excess of events is observed above the expected background with a local significance of 2.1 standard deviations for a Higgs boson mass of 125 GeV, consistent with the expectation from the production of the standard model Higgs boson. The signal strength corresponding to this excess, relative to that of the standard model Higgs boson, is 1.0 +/- 0.5.

[P101-2014] "Studies of azimuthal dihadron correlations in ultra-central PbPb collisions at=2.76 TeV"

Chatrchyan, S.; Khachatryan, V.; Sirunyan, A. M.; Tumasyan, A.; Adler, V.; Beernaert, K.; Benucci, L.; Cimmino, A.; Costantini, S.; Dildick, S.; Garcia, G.; Klein, B.; Lellouch, J.; Mccartin, J.; Rios, A. A. Ocampo; Ryckbosch, D.; Diblen, S. Salva; Sigamani, M.; Strobbe, N.; Thyssen, F.; Tytgat, M.; Walsh, S.; Yazgan, E.; Zaganidis, N.; **Chinellato, J.***; **Tonelli Manganote, E. J.***; et al. CMS Collaboration

Azimuthal dihadron correlations of charged particles have been measured in PbPb collisions at = 2.76TeV by the CMS collaboration, using data from the 2011 LHC heavy-ion run. The data set includes a sample of ultra-central (0-0.2% centrality) PbPb events collected using a trigger based on total transverse energy in the hadron forward calorimeters and the total multiplicity of pixel clusters in the silicon pixel tracker. A total of about 1.8 million ultra-central events were recorded, corresponding to an integrated luminosity of 120 mu b -aEuro parts per thousand 1. The observed correlations in ultra-central PbPb events are expected to be particularly sensitive to initial-state fluctuations. The single-particle anisotropy Fourier harmonics, from v (2) to v (6), are extracted as a function of particle transverse momentum. At higher transverse momentum, the v (2) harmonic becomes significantly smaller than the higher-order v (n) (n a parts per thousand yenaEuro parts per thousand 3). The p (T)-averaged v (2) and v (3) are found to be equal within 2%, while higher-order v (n) decrease as n increases. The breakdown of factorization of dihadron correlations into single-particle azimuthal anisotropies is observed. This effect is found to be most prominent in the ultra-central PbPb collisions, where the initial-state fluctuations play a dominant role. A comparison of the factorization data to hydrodynamic predictions with event-by-event fluctuating initial conditions is also presented.

[P102-2014] "Tailoring Thermal Transport Property of Graphene through Oxygen Functionalization"

Zhang, H. J.; **Fonseca, A. F.***; Cho, K.

We compute thermal conductivity of graphene oxide at room temperature with molecular dynamics simulation. To validate our simulation model, we have investigated phonon scattering in graphene due to crystal boundary length and isotope defect, both of which are able to diagnose the behavior of long wavelength and short wavelength phonon scattering. Our simulation shows that thermal conductivity of pristine graphene has logarithmic divergence for the boundary length up to 2 pm. As compared with pristine graphene, thermal conductivity of graphene oxide can be reduced by a factor of 25 at low oxygen defect concentration. Moreover, we find that not only the concentration but also the configuration of the oxygen functional groups (e.g., hydroxyl, epoxide, and ether) has significant influence on the thermal conductivity. Through phonon mode analysis, phonon defect scattering as well as phonon localization are mainly responsible for the conspicuous reduced thermal conductivity. The simulation results have provided fundamental insight on how to precisely control thermal property of graphene oxide for thermal management and thermoelectric applications.

[P103-2014] "The addition of Si to the Ti-35Nb alloy and its effect on the corrosion resistance, when applied to biomedical materials"

Tavares, A. M. G.; Fernandes, B. S.; Souza, S. A.; Batista, W. W.; Cunha, F. G. C.; **Landers, R.***; Macedo, M. C. S. S.

Alloy elements such as niobium and silicon have been added to titanium as an alternative for new materials to be used in orthopedic implants once they present biocompatibility and favor reductions in the elastic modulus. However, these new materials' behavior, in face of corrosion is still demanding careful investigations because they will be subjected to an aggressive environ, such as the human body. The corrosion resistance of the Ti-35Nb-(0; 0.15; 0.35; 0.55) Si (% in mass) when in physiological medium was assessed by means of polarization curves, open circuit potential and electrochemical impedance spectroscopy. The compositions of the passive films were analyzed by X-ray photoelectron spectroscopy (XPS). Outcomes show that the alloys presented good rapid repassivation capacity after film breaking under high potentials. The high values of resistance to polarization - Rp - pinpoint that the formed oxide films are resistive. They work as a protecting barrier against aggressive ions. Data suggest that the studied alloys are promising for orthopedic implant applications.

[P104-2014] "Tight bounds for the entanglement of formation of Gaussian states"

Nicacio, F.; **de Oliveira, M. C.***

We establish tight upper and lower bounds for the entanglement of formation of an arbitrary two-mode Gaussian state employing the necessary properties of Gaussian channels. Both bounds are strictly given by the entanglement of formation of symmetric Gaussian states, which are simply constructed from the reduced states obtained by partial trace of the original one.

[P105-2014] "Tuning the transport properties of graphene films grown by CVD on SiC(0001): Effect of in situ hydrogenation and annealing"

Jabakhanji, B.; Michon, A.; Consejo, C.; Desrat, W.; Portail, M.; Tiberj, A.; Paillet, M.; Zahab, A.; Cheynis, F.; Lafont, F.; Schopfer, F.; Poirier, W.; Bertran, F.; Le Fevre, P.; Taleb-Ibrahimi, A.; Kazazis, D.; Escoffier, W.; **Camargo, B. C.***; **Kopelevich, Y.***; Camassel, J.; Jouault, B.

The structural, optical, and transport properties of graphene grown by chemical vapor deposition (CVD) of propane under hydrogen on the Si face of SiC substrates have been investigated. We show that little changes in temperature during the growth can trigger the passivation of the SiC surface by hydrogen. Depending on the growth condition, hole or electron doping can be achieved, down to a few 10(11) cm(-2). When the growth temperature is high (T approximate to 1500-1550 degrees C), we obtain electron-doped graphene monolayers lying on a buffer layer. When the growth temperature is slightly lowered (T approximate to 1450-1500 degrees C), hole-doped graphene layers are obtained, lying on a hydrogen-passivated SiC surface, as confirmed by the enhancement of the mobility (of the order of 4500 cm(2)/Vs) and the persistence of weak localization almost up to room temperature (250 K). The high homogeneity of this graphene allows the observation of the half-integer quantum Hall effect, typical of graphene, at the centimeter scale in the best cases. The influence of the SiC steps on the transport properties is discussed.

[P106-2014] "Two-and three-pion quantum statistics correlations in Pb-Pb collisions at root S-NN=2.76 TeV at the CERN Large Hadron Collider"

Abelev, B.; Adam, J.; Adamova, D.; Aggarwal, M. M.; **Chinellato, D. D.***; **Dash, A.***; **Takahashi, J.***; et al.
ALICE Collaboration

Correlations induced by quantum statistics are sensitive to the spatiotemporal extent as well as dynamics of particle-emitting sources in heavy-ion collisions. In addition, such correlations can be used to search for the presence of a coherent component of pion production. Two- and three-pion correlations of same and mixed charge are measured at low relative momentum to estimate the coherent fraction of charged pions in Pb-Pb collisions at root S-NN = 2.76 TeV at the CERN Large Hadron Collider with ALICE. The genuine three-pion quantum statistics correlation is found to be suppressed relative to the two-pion correlation based on the assumption of fully chaotic pion emission. The suppression is observed to decrease with triplet momentum. The observed suppression at low triplet momentum may correspond to a coherent fraction in charged-pion emission of 23% +/- 8%.

[P107-2014] "Unveiling the origin of oxygen atomic impurities in Au nanowires"

Nascimento, A. P. F.*; San-Miguel, Miguel A.; **da Silva, E. Z.***

The appearance of unusually large Au-Au bond distances in linear atomic chains (LACs) of Au nanowires is commonly attributed to the presence of atomic impurities. However, the origin of those contaminants is unknown. We present a study based on density functional theory calculations using quasistatic (T = 0) and finite-temperature ab initio molecular-dynamics simulations of a possible route for the formation of atomic impurities in Au nanowires. This process starts with the adsorption of an O-2 molecule followed by a CO molecule on Au LACs, leading to the formation of an intermediate O2CO complex. Upon thermal activation at finite temperatures, the complex is able to proceed to oxidation forming a CO2 molecule and leaving an atomic O impurity in the Au LAC.

[P108-2014] "Violation of the universal behavior of membranes inside cylindrical tubes at nanoscale"

Perim, E.*; Fonseca, A.F.*; Pugno, N.M.; **Galvao, D.S.***

Recently, it was proposed based on classical elasticity theory and experiments at macroscale, that the conformations of sheets inside cylindrical tubes present a universal behavior. A natural question is whether this behavior still holds at nanoscale. Based on molecular-dynamics simulations and analytical modeling for graphene and boron nitride membranes confined inside carbon nanotubes, we show that the class of universality observed at macroscale is violated at nanoscale. The precise origin of these discrepancies is addressed and proven to be related to both surface and atomistic effects.

Proceedings

[P109-2014] "Abrikosov-like lattices in organic crystals on graphite surface"

Alexandre F.*; Paulo N. Lisboa-Filho

The interest for surface patterning presents a fast increasing in the last few years due to several factors ranging from miniaturization trends and sensor design to worries about the absorption of carcinogenic molecules on inhalable particles. Although the existence of a vast literature regarding the self-assembly and patterning of nanoparticles on different types of surfaces, it remains unclear the dynamics and main mechanisms behind the formation and maintenance of two-dimensional symmetric patterns of small molecules on top of surfaces. In this contribution, we report initial results on an investigation on the similarities between the well-known Abrikosov hexagonal lattices in superconductors, and the spontaneous formation of hexagonal patterns of some small polycyclic aromatic hydrocarbons (PAHs) on top of a graphitic surface. In order to attest our results, some experimental results from literature are compared to the obtained results.

[P110-2014] "An empirical model to describe rapidity density and transverse momentum distributions"

Ohsawa, A.; **Shibuya, E.H.***; Tamada, M.

The distribution of rapidity density and transverse momentum is formulated empirically and analytically. It describes the data quite well over the wide energy range of $\sqrt{s}$ = 22.4 - 7000 GeV.

[P111-2014] "Application of a photonic crystal fiber LPG for vibration monitoring"

Nascimento, I.M.; Marco Sousa, G.C.; **Osório, J.H.***; Baptista, J.M.; **Cordeiro, C.M.B.***; Jorge, P.A.S.

A fiber optic sensor based on a long-period grating (LPG) inscribed in a photonic crystal fiber is investigated for vibration sensing for structural monitoring applications. In this paper, preliminary results are shown demonstrating the sensor ability to detect vibration induced in a test structure. The sensor frequency response when attached to a loudspeaker-acrylic plate stimulation system (tested in the range from 40 Hz to 2.5 kHz) is analyzed using an intensity based scheme with a tunable laser. An alternative interrogation scheme, where the vibration signal is retrieved from a spectral scan, is also demonstrated and analyzed showing promising characteristics for structural health monitoring.

[P112-2014] "Design and fabrication of two-dimensional hexagonal photonic crystals with a linear waveguide in erbium doped GeO2-Bi2O 3-PbO-TiO2 glasses"

Avila, L.F. *; Almeida, J.M.P.; Gonçalves, M.S.; Valle, P.S.; Nalin, M.; Mendonça, C.R.; **Cescato, L. ***

In this work, we designed and recorded two-dimensional Hexagonal Photonic Crystals (2D-HPC) layers, with a linear waveguide, in erbium doped GeO 2-Bi2O3-PbO-TiO2 glassy films, by combining the techniques of holographic recording and femtosecond (fs) laser micromachining.

The 2D-HPC is recorded holographically in a photoresist film coated on a glass substrate by exposing the sample to the same interference pattern twice and rotating the sample of 60° between the exposures. After the development a two dimensional hexagonal array of photoresist columns remain on the glass substrate. The recording of the waveguide is made by a fs laser micromachining system focused at sample surface. The laser spot produces the ablation of the photoresist columns generating a defect line in the periodic hexagonal array. After the recording of the photoresist template, the erbium doped GeO2-Bi2O3-PbO-TiO2 film is evaporated on the photoresist and finally the photoresist template is removed using acetone. The design of the geometrical parameters of the 2D-HPC is performed by calculation of the dispersion mode curves of the photonic crystal using a 2D finite element method. The proper geometrical parameters depend on both the refractive index of the glass film and thickness. Such parameters as well as the period of the 2D-HPC have been defined in order to obtain a photonic band gap in the region of erbium luminescence band. In such condition the erbium luminescence will propagate only through the waveguide.

[P113-2014] "Electrically pumped metallo-dielectric pedestal nanolasers"

Gu, Q.; Wingad, B.; **Vallini, F.***; Slutsky, B.; Katz, M.; Nezhad, M.P.; **Frateschi, N.C.***; Fainman, Y.

Electrically pumped metallo-dielectric nanolasers are demonstrated. Employing a two-step InP chemical etching, we obtain straight pedestal sidewalls and preferentially reduce the diameter of the n-doped InP cladding more than the p-doped one for optimized performance.

[P114-2014] "Eliminating structural loss in optomechanical resonators using elastic wave interference"

Lipson, M.; Zhang, M.; **Luiz, G.D.O.***; Shah, S.; Nussenzveig, P.; **Wiederhecker, G.S.***

We theoretically and experimentally demonstrate that the support loss of double-disk optomechanical resonators can be minimized using destructive elastic wave interference. We show 100MHz Si3N4 resonators with mechanical quality factor of 104 at room temperature.

[P115-2014] "Enhanced q with internally coupled microring resonators"

Barea, L.A.M.*, **Vallini, F.***, **Alegre, T.P.M.***, **Wiederhecker, G.S.***, **Frateschi, N.C.***

We demonstrate fourfold quality factor (Q) enhancement with microring resonators internally coupled to larger microring resonator. Q ~ 37,000 is obtained for a 5 μm radius microring in a 40 μm × 40 μm footprint device.

[P116-2014] "Fabrication of a spun elliptically birefringent photonic crystal fiber and its characterization as an electrical current sensor"

Brígida, A.C.S.; Nascimento, I.M.; **Chesini, G. ***; Hayashi, J.G.; Baptista, J.M.; Costa, J.C.W.A.; Martinez, M.A.G.; Jorge, P.A.S.; **Cordeiro, C.M.B.***

In this paper a spun elliptically birefringent photonic crystal fiber is fabricated and characterized. Its performance as a current sensor, using a polarimetric configuration, was tested and compared against single mode fiber at 633 nm. In particular the sensor sensitivity and linearity was investigated using fiber loops with different radius or number of turns around the conductor. The results obtained show that the spun fiber (40 rotation per meter) is able to suppress quite effectively the effects of the bend induced birefringence as compared to the standard fiber.

[P117-2014] "Generation of polarizing sections in highly birefringent photonic crystal fibers via post-processing"

Romagnoli, P. , **Biazoli, C.R. ***, Franco, M.A.R. , **Cordeiro, C.M.B.*** , Matos, C.J.S.D.

The structure of a commercial highly birefringent PCF was locally tapered to create a polarizing section. A polarization-depended loss of at least 32.2 dB over a 1-cm length was induced in the 1550-nm region.

[P118-2013] "Heavy-ion collisions at the dawn of the large hadron collider era"

Takahashi, J.*

In this paper I present a review of the main topics associated with the study of heavy-ion collisions, intended for students starting or interested in the field. It is impossible to summarize in a few pages the large amount of information that is available today, after a decade of operations of the Relativistic Heavy Ion Collider and the beginning of operations at the Large Hadron Collider. Thus, I had to choose some of the results and theories in order to present the main ideas and goals. All results presented here are from publicly available references, but some of the discussions and opinions are my personal view, where I have made that clear in the text..

[P119-2013] "Holographic recording in photorefractive Bi2TeO5 crystals at high intensity"

De Oliveira, I.; Carvalho, J.F.; Fabris, Z.V.; **Frejlich, J.***

We report the recording of nearly 35% diffraction efficiency holograms of photorefractive nature in Bi2TeO5 crystals, using 633 nm wavelength laser beams. Holographic techniques showed that a slow and a fast holograms arise, the latter based on electrons and the former based on positively charged carriers. We also measured the quantum efficiency for photoelectron generation and the characteristic diffusion (LD) and Debye (ls) lengths of these holograms and verified that LD and ls are modified as the light intensity onto the crystal increases, in agreement with previously reported theoretical prediction and experimental results but on other photorefractive material.

Proceedings of SPIE - The International Society for Optical Engineering, 8785, art. no. 87852N, 2013.

[P120-2014] "Imaging at 0.2 and 2.5 terahertz"

Melo, A. M.; Toledo, M.A.P.; Maia, F.C.B.; Rocha, A.; Plotegher, M. B.; **Pereira, D.*; Cruz, F.C.***

We report the development and initial results of two Terahertz imaging systems based on monochromatic sources at 0.2 and 2.52 THz. The first is based on a microwave oscillator, whose frequency is multiplied to 0.2 THz, used in conjunction with a zero-bias detector. The sample is scanned across the beam, and transmission images are obtained after processing. The second system allows real-time images, and consists of a methanol gas laser emitting at 119 microns (2.52 THz) and a commercial camera based on a microbolometer array. We describe the construction and performance of the methanol laser and a tunable CO_2 laser, which emits 20 W at the 9P(36) pump line. Due to the high coherence of the laser, this system is particularly suited for diffraction and interference imaging. We have measured the absorption coefficients of a few samples assuming the Beer law.

Proceedings of SPIE - The International Society for Optical Engineering, 8624, art. no. 86240E, 2013.

[P121-2014] "Self diffraction holographic techniques for investigation of photosensitive materials"

Avila, L.F.; Nalin, M.; **Cescato, L. ***

Holographic techniques are powerful tools to study photosensitive materials due to the high sensitivity of diffraction measurement and the ability to detect dynamic gratings. The self diffraction technique consists in to project an interference fringe pattern into the photosensitive material and to measure, in real time, the self-diffraction of the interfering beams, at the grating generated in the photosensitive material. Besides the higher sensitivity, such measurement allows to measure simultaneously and separately the phase and the amplitude grating contributions, as well as thin or thick gratings. In order to demonstrate potentiality of this technique we measured the kinetic constant of the photo-reaction in positive photoresists (AZ types) and negative SU-8 photoresist, as well as the maximum values of the refractive index and of the absorption coefficient modulations induced in these materials at different wavelengths of exposure. The same measurements were performed in SB based chalcogenide glasses in order to evaluate the potential of such materials to be used as optical data storage devices.

Proceedings of SPIE - The International Society for Optical Engineering, 8776, art. no. 87760G, 2013.

[P122-2014] "The performance of THz photometers for solar flare observations from space"

Kaufmann, P.; Fernandes, L.O.T.; Kudaka, A.S.; **Marcon, R.*;** Bortolucci, E.C.; Machado, N.; Abrantes, A.; Da Silva, C.M.; Nicolaev, V.; Timofeevsky, A.; Marun, A.

The performance of the double THz photometers system is presented. It is the first detection device conceived to observed solar flare THz emissions on board of stratospheric balloons. The system, named SOLAR-T, has been built, integrated to data acquisition and telemetry modules developed for this application, and tested. It utilizes two Golay cell detectors preceded by low-pass filters, 3 and 7 THz band-pass filters, and choppers. SOLAR-T photometers can detect relative temperature variations smaller than 1 K with sub second time resolution. It is intended to determine the still unrevealed spectral shape of the mysterious THz solar flares emissions. The experiment is planned to fly on board of two long-duration stratospheric balloon flights over Antarctica and Russia in 2014-2016.

SBMO/IEEE MTT-S International Microwave and Optoelectronics Conference Proceedings, art. no. 6646431, 2013.

Book Review

[L001-2014] "Arnold Sommerfeld: Science, Life and Turbulent Times 1868-1951"

Assis, Andre K. T.*

Science & Education 23[3], SI, 707-710, 2014. DOI: 10.1007/s11191-013-9662-x

*Autores da comunidade IFGW.

Defesas de Teses - Doutorado

[T004-2014] "Nanoscrolis e outras nanoestruturas"
Aluno: Eric Perim Martins
Orientador: Prof. Dr. Douglas Soares Galvão
Data: 25/02/2014

[T005-2014] Simulações de sistemas em nanoescala: Membranas de grafeno e espectroscopia fora do equilíbrio"
Aluno: Gustavo Brunetto
Orientador: Prof. Dr. Douglas Soares Galvão
Data: 26/02/2014

[T006-2014] Estudo de filmes ultra finos de óxidos 'high-K' crescidos sobre semicondutores"
Aluno: Marcelo Falsarella Carazzolle
Orientador: Prof. Dr. Richard Landers
Data: 27/02/2014

[T007-2014] "Electronic and optical properties of diluted magnetic semiconductor quantum wells and quantum dots"
Aluno: Udson Cabral Mendes
Orientador: Prof. Dr. José Antonio Brum
Data: 21/03/2014

[T008-2014] "Estudos de compostos intermetálicos com gaiolas investigados por espectroscopia e difração de raios--x"
Aluno: José Renato Linares Mardegan
Orientador: Prof. Dr. Carlos M. Giles
Data: 26/03/2014

[T009-2014] "Ressonância de Spin eletrônico em compostos intermetálicos"
Aluno: Lino Martins de Holanda Junior
Orientador: Prof. Dr. Pascoal G. Pagliuso
Data: 04/04/2014

Fonte: Portal IFGW/PPós-graduação.
Disponível em: http://portal.ifi.unicamp.br/
eventos#date=2013-05-01,mode=month

*A partir de 2014 o Boletim Abstracta é publicado apenas em versão eletrônica. Acesse o portal Abstracta e faça seu cadastro como leitor, para receber em seu email a notificação de cada novo número publicado:

<http://abstracta.ifi.unicamp.br>