

Abstracta

Ano I - N. 12

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Trabalhos Aceitos para Publicação

A082-97 à A086-97

Trabalhos Aceitos para Apresentação em Conferências

C016-97 à C022-97

Accepted papers

[A082.97] "On a Generalized Gibbs-Boltzmann Ensemble Formalism for Dissipative Systems"

J. R. Madureira, A. R. Vasconcellos, R. Luzzi

In the approach to Statistical Mechanics of nonequilibrium-nonlinear (dissipative) systems based on a generalized Gibbs-Boltzmann ensemble formalism, is acquiring prominence the so called Nonequilibrium Statistical Operator Method. We consider here the case of a generalized nonequilibrium grand-canonical ensemble. Its construction requires to introduce besides the traditional densities of energy and of particle number their nonconserving-dissipative fluxes of all order.

Physica A 257 (1-4), 424-428, Ago 1998

[A083.97] "Statistical Thermodynamic Approach to Vibrational Solitary Waves in Acetanilide"

A. R. Vasconcellos, M. V. Mesquita, R. Luzzi

We analyze the behavior of the macroscopic thermodynamic state of polymers, centering on acetanilide. The nonlinear equations of evolution for the populations and the statistically-averaged field amplitudes of co-stretching modes are derived. The existence of excitations of the solitary wave type is evidenced. The infrared spectrum is calculated and compared with the experimental data of Carreri et al., resulting in a good agreement. We also consider the situation of a nonthermally highly excited sample, predicting the occurrence of a large increase in the lifetime of the solitary wave excitation.

Physica Review Letters 80 (9), 2008-2011, Mar 1998

[A084.97] "First-Order Melting of Vortex Lattice in Anisotropic Superconductors in Magnetic Field With Arbitrary Direction"

J. M. Calero, E. Z. da Silva

We calculate the angular dependence of the transition line of the first-order melting in strong type-II superconductors using an angular dependent non-perturbative model for the critical behavior in three-dimensional anisotropic superconductors and a self-consistent Hartree treatment of correlations along the direction where fluctuations occur. Results are in good agreement with experiments performed in untwinned single crystals of $\text{YBa}_2\text{Cu}_3\text{O}_{7-d}$.

Journal of Physics 10, 1363-1369, 1998

[A085.97] "High Energy Parton-Parton Amplitudes From Lattice QCD and the Stochastic Vacuum Model"

A. F. Martini, M. J. Menon, D. S. Thober

Making use of the gluon gauge-invariant two-point correlation function, recently determined by numerical simulation on the lattice in the quenched approximation and the Stochastic Vacuum Model, we calculate the elementary (parton-parton) amplitudes in both impact-parameter and momentum transfer spaces. The results are compared with those obtained from the Krümer and Dosch ansatz for the correlators. Our main conclusion is that the divergences in the correlations functions suggested by the lattice calculations do not affect substantially the elementary amplitudes. Phenomenological and semi-empirical informations presently available on elementary amplitudes are also referred and are critically discussed in connection with some theoretical issues.

Physical Review D 57 (5), 3026-3035, 1998

[A086.97] "Effect of the Volume Variation on the Properties

of the Kondo System $(\text{La}_{1-x}\text{Ce}_x)_3\text{Al}$ "

A. N. Medina, M. A. Hayashi, L. P. Cardoso, S. Gama, F. G. Gandra

We have measured the electrical resistivity and ac magnetic susceptibility $\chi(T)$ of $(\text{La}_{1-x}\text{Ce}_x)_3\text{Al}$, for $0 < x < 1$, and the electrical resistivity of $(\text{Ce}_{1-z}\text{Y}_z)_3\text{Al}$, for $0 < z < 0.1$. The system was characterized using X-ray diffraction and metallography. From X-ray data we were able to determine the structure for all samples to be hexagonal and that the unit cell volume decreases linearly in going from the La side to the Ce side. The results shows that La_3Al is a superconductor below 6.2 K and that T_c decreases rapidly with the increase of the Ce concentration. For $x > 0.04$ we observed a minimum in the resistivity and a reduction of the effective magnetic moment of Ce due to a strong compensation promoted by the Kondo effect. Our results show that the Kondo temperature increases with Ce and Y concentration, according the reduction of the unit cell volume. We also show that the antiferromagnetic transition goes through a maximum for $z = 0.025$, indicating that there is an interplay between superconductivity, anti-ferromagnetic ordering and the Kondo effect. A diagram illustrating the evolution of T_K and T_N is presented. The behavior of the electronic specific heat (g) increases with the Ce concentration showing a maximum around $x \sim 0.4$. It was also possible to determine values for the $n(\text{ef})J$ product and the relative variation of the exchange parameter.

Physical Review B 57 (10), 5900-5905, Mar 1998

Accepted papers for conference presentation

[C016.97] "Gain and Noise Spectrally Resolved Dynamics of Erbium Doped Fiber Amplifiers"

C. Mazzali, H.L.Fraguito

A synchronized spectrum scan technique was developed where we are able to visualize the EDFA step function response simultaneously over the entire EDFA (Erbium Doped Fiber Amplifier) bandwidth. We use this technique to perform some applied studies on the influence of gain and noise dynamics in WDM (Wavelength Division Multiplexing) applications.

In: OFC'98 - Optical Fiber Comm. Conf., San Jose, California, 22-27 de fevereiro de 1998

[C017.97] "Quaternionic Analysis and Hadron-Hadron Scattering Dispersion Relations"

M. J. Menon, A. E. Motter

This work is dedicated to the memory of Professor José Tadeu de Souza Paes, our colleague and friend.

In collision theory integral dispersion relations may connect the real and imaginary parts of the scattering amplitude. Also, an adequate analytic continuation of the amplitude to the complex energy and momentum-transfer planes can be interpreted as a regular quaternionic function. This suggests quaternionic analysis as a possible scenario for the investigation of elastic hadron-hadron scattering. In this work, considering typical amplitudes for elastic proton-proton and antiproton-proton scattering, we calculate the dispersion relations constructing the quaternionic analog of the Hilbert transform.

In: XVIII Brazilian National Meeting on Particles and Fields, Caxambu- MG, Sept. 29 - Oct. 3, 1997

[C018.97] "Differential Dispersion Relations. I. Formulation"

M. J. Menon, A. E. Motter, B. M. Pimentel

Starting from singly subtracted integral dispersion relations we

review the essential steps leading to an arbitrary number of subtractions and also to a singly subtracted differential relation. We then generalize this quasi-local differential result for an arbitrary number of subtractions and for both even and odd amplitudes.

In: XVIII Brazilian National Meeting on Particles and Fields, Caxambu- MG, Sept. 29 - Oct. 3, 1997

[C019.97] "Effective Optical Hadron-Hadron Potential From an Eikonal Approach to Elastic Scattering"

E. Capelas de Oliveira, A. F. Martini, M. J. Menon

Making use of the Abel integral equation we calculate the effective optical potential associated with an eikonal parametrization, successfully used in the description of elastic hadron scattering. We obtain a class of solutions expressed by superpositions of Yukawa-like potentials and exponentially decreasing terms. The dependences of both real and imaginary parts with the energy and distance are also presented and discussed.

In: XVIII Brazilian National Meeting on Particles and Fields, Caxambu- MG, Sept. 29 - Oct. 3, 1997

[C020.97] "Differential Dispersion Relations. II. Elementary Amplitudes"

M. J. Menon, J. T. S. Paes, M. J. Silva Neto

In the context of a multiple diffraction model for high-energy elastic proton-proton scattering early developed, we introduce differential dispersion relations in order to evaluate the real part of the elementary (constituent - constituent) amplitude. Making use of the general formula, which depends on one parameter and letting it free, we achieved better descriptions of the physical observables then obtained with the former approach.

In: XVIII Brazilian National Meeting on Particles and Fields, Caxambu- MG, Sept. 29 - Oct. 3, 1997

[C021.97] "Inelastic and Non-Single-Diffractive Factorial Moments From Phenomenological Models for Elastic Hadron Scattering"

P. C. Beggio, M. J. Menon

We calculate the normalized factorial moments of multiplicity distributions through three models for elastic hadron scattering (Chou-Yang, Henzi-Valin and Menon-Pimentel). Connections between the moments and the inelastic overlap function and/or eikonal function are obtained by means of an impact parameter representation for the multiplicity distribution. The predictions are compared with experimental data on factorial moments from both inelastic and non-single-diffractive events. The model results present best agreement with the inelastic events and data favour the model by Henzi

and Valin.

In: XVIII Brazilian National Meeting on Particles and Fields, Caxambu- MG, Sept. 29 - Oct. 3, 1997

[C022.97] "On the Amaldi-Schubert Paramatrization for the Elastic PP Scattering Amplitude"

M. J. Menon, J. T. S. Paes

Making use of the parametrization introduced by Amaldi and Schubert for the scattering amplitude, we analyse elastic pp scattering at high energies, by means of fits to the differential cross section data. We introduce three modifications in the original parametrization by letting free 1, 2 and 3 parameters. Fits through the CERN-minuit routine lead to improved statistical results ($\chi^2/\text{d.o.f.}$), allowing the determination of the errors in the free parameter. Taking account of error propagation we calculate the profile, eikonal and inelastic overlap functions. The eikonal in the momentum transfer space presents one zero (change of sign) and we can infer that its position decreases as the energy increases above $\sqrt{s}=10$ GeV.

In: XVIII Brazilian National Meeting on Particles and Fields, Caxambu- MG, Sept. 29 - Oct. 3, 1997

In memorian: José Tadeu de Souza Paes, 1952 - 1997

This manuscript corresponds to the panel presented by Professor J. T. S. Paes, who died threeweeks after this Meeting. The work is part of his doctoral thesis, scheduled for next February. He was a great friend for thirteen years and will be sorely missed.

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Tânia Macedo Folegatti

Nota: Arquivo gerado em nov/2011 tendo como base as informações da edição do Abstracta distribuída na época. O arquivo original não foi preservado.

Abstracta

Instituto de Física

Diretor: Prof. Eliermes Arraes Meneses

Universidade Estadual de Campinas - UNICAMP

Cidade Universitária Zeferino Vaz

13083-859 - Campinas - SP - Brasil

e-mail: secdir@ifi.unicamp.br

Fone: 0XX 19 3521 - 5300

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Biblioteca do Instituto de Física Gleb Wataghin
<http://webbif.ifi.unicamp.br>
Diretora Técnica: Rita Aparecida Sponchiado

Elaboração
Tânia Macedo Folegatti
abstract@ifi.unicamp.br

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