Trabalhos Aceitos para Publicação

A004-99 à A011-99

Accepted papers

[A004-99] "Structural and Superconducting Properties of LaBaCaCu3O7 System: a neutron diffraction study."

V. P. S. Awana, O. F. de Lima, S. K. Malik, W. B. Yelon, A. V. Narlikar

The results on structural aspects and superconductivity of LaBaCaCu3O7 (la:1113) are reported. Both X-ray and neutron diffraction studies reveal that La: 1113 compound crystallizes in P4/mmm tetragonal structure. Our careful and detailed neutron diffraction study reveals that in this compound the La, Ca and Ba sites are intermixed with each other. Nearly 46% of Ca occupy the usual La-site, while the remaining 54% stay at Ba-site. Subsequently, a corresponding amount of La substitutes at the Ba-site. These occupancy refinements explain the tetragonal structure of the compound, despite having, an oxygen content close to 7.04. The compound studied presently shows a sharp superconducting transition at about 68k.

Physica C 314 (1-2), 93-97, 1999

[A005-99] "The Influence or Ernst Mach in the Teaching of Mechanics."

A. K. T. Assis, A. Zylbersztajn

We present Newton's main ideas for the formulation of classical mechanics as given in the Principia. Then we discuss Ernst Mach's criticisms of Newtonian mechanics as contained in his book The Science of Mechanics. We analyze the influence of Mach's ideas in the teaching of classical mechanics considering five representative textbooks: those of Kittel, Knight and Ruderman; Marion and Thornton; Symon'Feynman, Leighton and Sands; and Goldstein. We conclude that the influence of Mach's ideas has been very great, being incorporated in the textbooks, although not always with the deserved acknowledgment.

Science and Education 10 (1-2), 137-144, Jan-Mar 2001

[A006-99] "Surface Charges and Fields in a Resistive Coaxial Cable Carrying a Constant Current."

A. K. T. Assis, J. I. Cisneros

We calculate the surface charges, potentials and fields in a long cylindrical coaxial cable with inner and outer conductors of finite conductivities and finite areas carrying a constant current. It is shown that there is an electric field outside the return conductor.

IEEE Transactions and systems 47 (1), 63-66, Jan 2000

[A007-99] "Differential Dispersion Relations with an Arbitrary Number of Subtractions: a recursive approach."

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

Making use of a recursive approach, derivative dispersion relations are generalized for an arbitrary number of subtractions. The results for both cross even and odd amplitudes are theoretically consistent at sufficiently high energies and in the region of small momentum transfer.

Physics Letters B 45 (1-2), 207-210, 1999

[A008-99] "Differential Dispersion Relations and Elementary Amplitudes in a Multiple Diffraction Model."

A. F. Martini, M. J. Menon, J. T. S. Paes, M. J. Silva Neto

We discuss the evaluation of the real part of the elementary amplitudes in the context of a multiple diffraction model for pp elastic scattering early developed. The framework is based on the concepts of analyticity and polynomial boundedness, and the techniques of dispersion relations.Novel results concern the use of derivative dispersion relations at the elementary level (constituent-constiuent interactions) and an optimization of these relations in terms of one free parameter. Besides a theoretical improvement, we achieved satisfactory description of the physical quantities.

Physical Review D 59 (11), 116006, 1999

[A009-99] "On Axisymmetric Double Adiabatic MHD Equilibria with Plasma Flow."

R. A. Clemente, R. L. Viana

The stationary equilibrium of an axisymmetric plasma characterized by toroidal and poloidal flows is considered within the framework of ideal double adiabatic MHD equations. The problem is reduced to a nonlinear partial differential equation for the poloidal magnetic flux function, containing six surface functions, plus a nonlinear algebraic Bernoulli equation defining the plasma density. Ellipticity conditions and bifurcations of its solutions are discussed in the limit of small beta, appropriated for tokamak-like equilibria. Possible connections with the L-H transition are suggested.

Plasma Physics and Controlled Fusion 41 (4), 567-573, 1999

[A010-99] "Change of the Kondo Regime in CePd2Al3 Induced by Chemical Aubstitution: verification of the Doniach Diagram."

A. N. Medina, D. P. Rojas, F. G. Gandra, W. R. Azanha, L. P. Cardoso

We report on measurements of specific heat and resistivity for the series of compounds (La1-xCex)Pd2Al3, for 0<x<1. The chemical substitution with la promotes an increase of the unit cell volume which is responsible for the changes observed for the ground state of the system.The resistivity results show two distinct behaviors: the Kondo single impurity for low Ce concentration and the Kondo lattice regime for the other end. From the magnetic specific heat results we estimated the Kondo temperature (TK). Our results show that TK increases monotonously with Ce concentration but with a strong variation of the Neel temperature. We also estimated the s-f exchange parameter and density of states for the whole series of compounds. A Doniach type diagram is presented including the literature data obtained from pressure experiments.

Physical Review B 59 (13), 8738-8744, 1999

[A011-99] "Scaling Laws in Annealed LiCoOx Films."

M. U. Kleinke, J. Davalos, C. Polo da Fonseca, A. Gorenstein

The surface morphology evolution due to annealing process of LoCoOx thin films depoposited by rf sputtering is studied by means of an atomic force microscope. Linear relationships were observed in log-log plots of interface width verrus window length, as predicted by scaling laws. For as-grown films, only one growth exponent * is evidenced. For annealed films two different slopes *1 and *2 were observed, indicating distinct growth dynamics in the system. The roughness exponent for the as-grown film and the internal morphology of the crystalline grains for the annealed films can be described by a diffusional process. The macro-structure, observed in images of greater size, shows characteristics of a

Kardar-Parisi-Zhang system. An activation energy Ed = (0.11 *
0.01) eV is determined for the diffusion process.

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

Abstracta