超导情报资料汇编

第三期

北京大学图书馆国际联机情报检索室

一九八七年十一月

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前　言

当前世界范围的超导研究正在迅猛发展，在这场激烈的国际竞争中，为使我国继续保持领先水平，迎接新的挑战，及时掌握有关信息是至关重要的。为此，我们已编印了两期新型氧化物陶瓷超导材料索引汇编，供有关研究人员参考。因所检文献已超出陶瓷材料的范围，从本期起，书名改为超导文献汇编。本汇编提供了世界各国已发表的有关超导研究的文献信息，可使读者了解世界各国超导研究的概貌及进展情况，因此具有重要的参考价值。

本汇编提供的文献著录项目包括　标题，作者，来源，文摘。

各期所收文献时间如下

第一期　1985年（部分），1986年（全部）
　　1987年（1--3月）。

第二期　1983年（全部），1984年（全部）
　　1987年（1--3月补充，4--6月）

第三期　1981年（部分），1982年（全部）
　　1987年（6--9月）。

79--81年，以及87年10月以后的资料，还将陆续出版。

这项工作对我们是一个新的尝试，工作中得到北京大学物理系韩汝珊教授的热情指导与帮助，在此我们深表感谢。由于时间紧迫，水平所限，书中一定有许多不妥之处，希望读者批评指正。

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1987年11月

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Field Code	Definition
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TI	Title of Document
AU	Author or Patent Inventor
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CY	Country of Publication
CC	Classification Code
DT	Document Type
TC	Treatment Code
LA	Language of Original Document
AB	Abstract Text
CT	Controlled Terms
ET	Element Terms

L1 ANSWER 1 OF 166

TI Electrochemical, structural, and physical properties of the sodium Chevrel phases NaxMo6X8-yIy (X = S, Se and y = 0 to 2).

AU Tarascon, J.M.; Hull, G.W. (Bell Communication Research, Murray Hill, NJ (USA)); Marsh, P.; Haar, T. (AT and T Bell Labs., Murray Hill, NJ (USA))

SO J. Solid State Chem. (Feb 1987) v. 66(2) p. 204-224
ISSN 0022-4596; CODEN JSSCB

AB We report the synthesis and structural and physical properties of the sodium Chevrel phases NaxMo6X8-yIy (X = S, Se; 0 <= y <= 2). These materials were synthesized by means of electrochemical reactions using Na/Mo6X8-yIy test cells. Structural changes induced by sodium intercalation were studied by in situ X-ray diffraction measurements. Cycling data indicates that the sodium intercalation process into Mo6X8-yIy is initially irreversible and results in compounds of formula NaxMo6X8-yIy with xmin decreasing from 1 to 0 as y increases from 0 to 2. However, after the first cycle the cells are readily reversible over several cycles. The analysis of the discharge curves show that the maximum sodium content (xmax) into the Mo6X8-yIy matrix decreases from 4 to 2 with y rising from 0 to 2. This behavior is consistent with the electronic structure of the "host" established from band structure calculations. The anomalies observed in the electrochemical curves (V(x) and dx/dV vs V) correlated perfectly with the observed structural changes. Structural studies for the NaxMo6X8 system revealed the presence of three single-phase compounds, R1(x approx.= 1), T1(x approx.= 3), and T2(x approx.= 4) where R and T correspond to rhombohedral and triclinic unit cells, respectively, the triclinic phases being extremely moisture sensitive. The range of existence of these phases turns out to be strongly dependent upon iodine substitution. Magnetic susceptibility measurements of the Na3Mo6X8 phase suggested a structural instability at 40 and 70 K for the sulfide and selenide, respectively, but neither superconducts down to 1.5 K. Conversely, both Na1Mo6X8 phases, which do not exhibit low-temperature anomalies in the temperature dependence of the susceptibility, become superconducting at 9 K. (orig.)

L1 ANSWER 2 OF 166

TI Raman spectroscopy in the organic conductors alpha- and beta-(BEDT-TTF)2X (X=I3 and IBr2).

AU Sugai, S. (Dept. of Physics, Faculty of Science, Osaka Univ., Toyonaka (Japan)); Saito, G. (Inst. for Solid State Physics, Univ. of Tokyo (Japan))

SO Synth. Met. (Mar 1987) v. 19(1-3) p. 231-236
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMEO

AB Raman study of molecular vibrations in the crystals of organic superconductors alpha and beta-(BEDT-TTF)2X, (X=I3, IBr2), a neutral donor BEDT-TTF, and acceptors n-Bu4N.I3 and n-Bu4N.IBr2 are presented. The I3 compounds show strong resonant effects, when the incident laser wavelength approaches the optical transition energy of the I3 anions. More than ten overtones of the symmetric stretching mode of anions appear. In the charge transferred salts the decrease of peak energies and their broadening are observed for the modes related to the C=C bonds. (orig.)

L1 ANSWER 3 OF 166

TI Optical properties of BEDT-TTF salts.

AU Kuroda, H.; Yakushi, K.; Tajima, H.; Kanbara, H. (Dept. of Chemistry, Faculty of Science, Univ. of Tokyo (Japan)); Saito, G. (Inst. for Solid State Physics, Univ. of Tokyo (Japan))

SO Synth. Met. (Mar 1987) v. 19(1-3) p. 131-136
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMEO

AB Reflectance spectra in the infrared and visible regions were observed on (BEDT-TTF)3(ClO4)2 and alpha-(BEDT-TTF)3(ReO4)2 which exhibit a M-I transition and on beta-(BEDT-TTF)2I3 and beta-(BEDT-TTF)2IBr2 which exhibit superconductivity at low temperatures. In all these cases, the reflectance spectra at room temperature showed a feature mainly determined by the contribution of inter-band transisitons, but a marked difference is found between the two types of the salts in respect to the temperature dependence of reflectance spectrum. (orig.)

L1 ANSWER 4 OF 166

TI Infrared and far infrared properties of some beta-(BEDT-TTF)2X compounds.

AU Jacobsen, C.S. (Physics Lab. 3, Tech. Univ. Denmark, Lyngby); Tanner, D.B. (Dept. of Physics, Univ. of Florida, Gainesville (USA)); Williams, J.M.; Wang, H.H. (Chemistry and Materials Science and Tech. Div., Argonne National Lab., IL (USA))

SO Synth. Met. (Mar 1987) v. 19(1-3) p. 125-130
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMED

AB Infrared and far infrared polarized reflectance spectra of beta-(BEDT-TTF)2X (X = I2Br-, aUI2-) are presented. Both have, as in the case of X = I3-, the strongest metallic character along the stacking axis, but two-dimensional plasmon behavior is found at low temperatures in all the materials. The distribution of oscillator strength is discussed with special emphasis on the non-Drude features. (orig.)

L1 ANSWER 5 OF 166

TI N.M.R. proton lineshape in (TMTSF)2X. Incommensurability of nesting vector, order parameter and anisotropy of SDW.

AU Delrieu, J.M.; Roger, M.; Toffano, Z.; Wope Mbougue, E.; Saint James, R. (S.P.S.R.M. CEA, CENS, 91 - Gif-sur-Yvette (France)); Bechgaard, K. (Dept. of General and Organic Chemistry, H.C. Oersted Inst., Copenhagen (Denmark))

SO Synth. Met. (Mar 1987) v. 19(1-3) p. 283-288
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMED

AB From a detailed analysis of the methyl proton N.M.R. line-shape, we determine experimentally the local fields at each methyl site in the S.D.W. state of the organic conductors (TMTSF)2PF6 and (TMTSF)2ClO4. We separate the dipolar contribution from the hyperfine contact term; we find the S.D.W. amplitude delta=8.5% +- 2% muB in unit muB per molecule) for PF6 and delta=12% muB for ClO4, and wave vector Q vector of the S.D.W. Q vector = 0.5 a*, (0.20 +- 0.05) b, . c* (a*, b*, c*, reciprocal lattice basis vector) for PF6 in agreement with realistic tight binding band calculations. The Q vector vector is different in (TMTSF)2ClO4: Q vector = 0.5a*, 0.1b* (or 0.3b*) if easy axis is 300 to +a vector (or -a vector resp.), . c* with different hyperfine contact fields. With dipolar interaction and spin orbit coupling, the main axis of anisotropy tensor are calculated as a function of the Q vector in TMTTF and TMTSF compounds and compared with experimental results. (orig.)

L1 ANSWER 6 OF 166

TI 77Se NMR spin-lattice relaxation rate properties in the (TMTSF)2X series under pressure. Cooperative phenomena and SDW transition.

AU Creuzet, F.; Bourbonnais, C.; Caron, L.G.; Jerome, D.; Moradpour, A. (Lab. de Physique des Solides, Univ. de Paris-Sud, 91 - Orsay (France))

SO Synth. Met. (Mar 1987) v. 19(1-3) p. 277-282
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMED

AB We present new results on 77Se spin-lattice relaxation in a single crystal of (TMTSF)2PF6 under pressure just above the critical pressure (Pc) (which stabilizes the superconducting state at 1.2 K). Strong deviations to the Korringa law are observed in the metallic regime. A very large enhancement of the relaxation rate at low temperature (below proportional 25 K) may be considered as a smooth evolution from one Korringa regime to an other. This behaviour is broadened and reduced in amplitude at higher pressure. These features are quite similar to those already reported for other members of the (TMTSF)2X family (but having a non centrosymmetrical anion (ClO4-, FSO3-)) and strongly support the interpretation based on the existence of one-dimensional 2kF spin correlations for repulsion short-range intrachain e--e- interactions. Below Pc the divergence of T1-1 associated with the transition to the insulating magnetic state may be analysed in terms of an antiferromagnetic critical effect with a 3D classical exponent. We propose an analysis of the AF transitions in these systems using a longitudinal nesting mechanism for the Fermi surface, namely (2kF,0,0). (orig.)

L1 ANSWER 7 OF 166

TI NMR-analysis of electronic properties in organic superconductors (TMTSF)2PF6 and beta-(BEDT-TTF)2I3.

AU Takahashi, T.; Maniwa, Y.; Kawamura, H. (Dept. of Physics, Gakushuin Univ., Tokyo (Japan)); Murata, K. (Electrotechnical Lab., Ibaraki (Japan)); Saito, G. (Inst. for Solid State Physics, Univ. of Tokyo (Japan))

SO Synth. Met. (Mar 1987) v. 19(1-3) p. 225-230
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMED

AB The results of 1H-NMR measurements on the single crystal of the organic superconductor (TMTSF)2PF6 and beta-(BEDT-TTF)2I3 are presented. A new phase transition in (TMTSF)2PF6 was found at 4 K by 1H relaxation anomaly. In beta-(BEDT-TTF)2I3, the 1H NMR lineshape was examined at temperatures around the incommensurate structural transition. An anomalous behaviour of 1H relaxation at low temperatures are discussed. (orig.)

L1 ANSWER 8 OF 166
TI Resistivity and magnetoresistance of the organic superconductor beta'(BEDT-TTF)2I3 at ambient pressure for current flow along the C* axis.
AU Cooper, J.R.; Forro, L. (Inst. of Physics, Univ. Zagreb (Yugoslavia)); Schweitzer, D. (Max-Planck-Inst. fuer Medizinische Forschung, Heidelberg (Germany, F.R.))
SO Synth. Met. (Mar 1987) v. 19(1-3) p. 1002
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
Published in summary form only
ISSN 0379-6779; CODEN SYMED

L1 ANSWER 9 OF 166
TI Properties of one-dimensional conductors with small interchain coupling.
AU Schulz, H.J. (Lab. de Physique des Solides, Univ. Paris-Sud, 91 - Orsay (France))
SO Synth. Met. (Mar 1987) v. 19(1-3) p. 992
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
Published in summary form only
ISSN 0379-6779; CODEN SYMED

L1 ANSWER 10 OF 166
TI Towards a unified theory of segregated stack organic charge-transfer solids.
AU Mazumdar, S. (GTE Labs. Incoporated, Waltham, MA (USA)), Dixit, S.N (Noyes Lab. for Chemical Physics, California Inst. of Tech., Pasadena (USA))
SO Synth. Met. (Mar 1987) v. 19(1-3) p. 93-98
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMED
AB Theoretical description of the complete family of quasi-one-dimensional segregated stack organic charge-transfer solids within a single unified model has remained elusive, largely due to the rich variety of behavior within the family. We claim that a previously proposed extended Hubbard model explains the variety in optical and magnetic behavior, as well as the irregular appearance of the 4kF X-ray scattering. We do not attempt to explain the superconductivity in the TMTSF and ET-salts, but we believe that theoretical modelling of even these latter class of materials must start from similar "correlated electron" models. (orig.)

L1 ANSWER 11 OF 166
TI Mechanism for longitudinal nesting in the antiferromagnetic transition of the Bechgaard salts.
AU Bourbonnais, C. (Lab. de Physique des Solides, Univ. de Paris-Sud, 91 - Orsay (France)); Caron, L.G. (Centre de Recherche en Physique du Solide, Faculte des Sciences, Univ. de Sherbrooke, Quebec (Canada))
SO Synth. Met. (Mar 1987) v. 19(1-3) p. 333-338
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMED
AB In this work we show how the interchain exchange mechanism is a good candidate to explain the origin of antiferromagnetic phase transitions involving a longitudinal nesting vector (2kF,0,0). Antiferromagnetic phase transitions take place in (TMTSF)2X (X=PF6, ClO4...) as a function of temperature or magnetic field and from available NMR data a comparative study is made of the magnetic transitions involving the (2kF,0,0) nesting vector as opposed to those with a 3D nesting vector. (orig.)

L1 ANSWER 12 OF 166
TI The Bechgaard salts. Spin density wave transitions in a magnetic field.
AU Kwak, J.F. (Sandia National Labs., Albuquerque, NM (USA))
SO Synth. Met. (Mar 1987) v. 19(1-3) p. 265-270
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMED
AB Magnetotransport data on the field-induced spin density wave (FISDW) state in (TMTSF)2PF6 under pressure are compared with analogous data on (TMTSF)2ClO4 and with certain predictions of current models. The observed differences between the two compounds' behaviors, which were previously thought to limit the generality of conclusions based on the study of only one system, can be ascribed to the anion ordering transition which occurs only in (TMTSF)2ClO4. The data are generally consistent with proposals that the transport "oscillations" are actually a series of field-induced phase transitions. The significance of certain aspects of the magnetotransport behavior in terms of the current models are discussed. (orig.)

L1 ANSWER 13 OF 166

TI The formation of heavy electrons in a magnetically ordered material.

AU Chen, C.; Zhang, L. (Inst. of Solid State Physics, Dept. of Physics, Peking Univ., Beijing (China))

SO Chin. Phys. Lett. (1987) v. 4(1) p. 5-8
ISSN 0256-307X; CODEN CPLEE

AB The necessary conditions for the presence of heavy electrons in metals and compounds, which contain local f electrons, are analyzed with an emphasis on the magnetically ordered materials. A self-consistent treatment on the Periodic Anderson Hamiltonian shows that there is a sharp change in the effective mass (therefore the density of states) while the virtual bound level crosses the Fermi level; meantime a transition between magnetic and nonmagnetic or/and between different magnetic states may concomitantly occur. Numerical calculation has been carried out and some typical results are shown. (orig.)

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L1 ANSWER 14 OF 166

TI Collective modes in organic conductors and superconductors.

AU Jerome, D. (Lab. de Physique des Solides, Univ. Paris Sud, 91 - Orsay (France))

SO Synth. Met. (Mar 1987) v. 19(1-3) p. 259-264
International Conference on Science and Technology of Synthetic Metals (ICSM '86), Kyoto (Japan), 1-6 Jun 1986
ISSN 0379-6779; CODEN SYMED

AB The recent discovery of non-linear conductivity in the Peierls state of TTF-TCNQ is attributed to a collective motion of the CDW condensate. High-pressure studies support this point of view. NMR relaxation rates, far infrared conductivity and microwave conductivity in (TMTSF)2X conductors are consistent with the development of a 1-D collective mode (conducting and magnetic) below 30 K. (orig.)

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L1 ANSWER 15 OF 166

TI Metal oxide superconductor BaPb1-xBixO3: unusual properties and new applications.

AU Gabovich, A.M.; Moiseev, D.P. (Institute of Physics, Academy of Sciences of the Ukrainian SSR, Kiev (USSR))

SO Sov. Phys. - Usp. (Dec 1986) v. 29(12) p. 1135-1150
Current Physics Microform No.: 8710X0755
ISSN 0038-5670; CODEN SOPUA

AB This article reviews the experimental and theoretical investigations of the superconducting solid solutions BaPb1-xBixO3 (BPB), which have critical temperatures Tcapprox.=13 K. The crystal structure, structural phase transitions, and the electrical and optical properties are examined in detail. Methods of preparing ceramic samples, as well as thin films and single crystals, are discussed briefly. Measurements of the electron specific heat and of the upper critical magnetic field are interpreted in terms of a theory of superconductors with partial dielectrization of the electron spectrum. Particular attention is paid to those properties of BPB which are a consequence of the granularity of the ceramic macrostructure and the existence of weak Josephson links between the granules. Correlations between the composition dependences of various normal and superconducting characteristics of BPB are elucidated, and the nature of the superconducting high Tc state with a small electron density of states (N(0) = 3x1021 eV-1 cm-3) at the Fermi surface is discussed.

L1 ANSWER 16 OF 166

TI Identification of the high-temperature superconducting phase in the Y-Ba-Cu-O system as the perovskite YBa2Cu3O7+-delta.

AU Ganguly, P.; Mohan Ram, R.A.; Sreedhar, K.; Rao, C.N.R. (Solid State and Structural Chemistry Unit, Indian Inst. of Science, Bangalore (India))

SO Pramana. (Mar 1987) v. 28(3) p. L321-L323
ISSN 0304-4289; CODEN PRAMC

AB The oxide responsible for high-temperature superconductivity (onset proportional100 K, zero resistance above liquid N2 temperature) is found to be YBa2Cu3O7+-delta. (orig.)

L1 ANSWER 17 OF 166

TI Collective excitation modes in the intermediate and superconducting states of doped and undoped indium and lead.

AU Joshi, V.V.; Chaudhuri, K.D. (Dept. of Physics and Astrophysics, Univ. of Delhi (India))

SO Pramana. (Feb 1987) v. 28(2) p. 205-215
ISSN 0304-4289; CODEN PRAMC

AB Ultrasonic attenuation was studied in pure In, In+0.003 at.% Pb, pure Pb and Pb+0.003 at.% In in the intermediate states (for the magnetic fields 0.7 Hc and 0.9 Hc) and superconducting states, for frequencies varying from 9.9 to 29.7 MHz, in the temperature range 4.2 to 1.4 K. Collective excitation modes were observed in both the states for all the samples. There exist two distinct phases in the intermediate state but only one phase in the superconducting state in all the samples. The first phase was dependent on the magnetic field and independent of the concentration and nature of the dopant. The second phase was independent of the magnetic field and dependent essentially on the concentration of vacancies and marginally on the concentration of the dopant. The origin of the two phases has been discussed. (orig.)

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L1 ANSWER 18 OF 166

TI High-temperature superconductivity in the 100 K region in perovskite-related oxides of the Ln-Ba-Cu-O (Ln=Y or La) system.

AU Ganguly, P.; Sreedhar, K.; Rao, C.N.R. (Solid State and Structural Chemistry Unit, Indian Inst. of Science, Bangalore (India)); Raychaudhuri, A.K. (Dept. of Physics, Indian Inst. of Science, Bangalore (India))

SO Pramana. (Feb 1987) v. 28(2) p. L229-L231
ISSN 0304-4289; CODEN PRAMC

AB Oxides of the Y-Ba-Cu-O system are found to show onset of superconductivity in the 100-120 K region. (orig.)

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L1 ANSWER 19 OF 166

TI Evidence against bulk superconductivity in the high temperature superconductor La1.85Sr0.15CuO4-y.

AU Waeppling, R.; Hartmann, O. (Dept. of Physics, Uppsala Univ. (Sweden)); Senateur, J.P.; Madar, R.; Rouault, A. (INPG, ENSPG, Lab. des Materiaux et du Genie Physique, 38 - Saint Martin d'Heres (France)); Yaouanc, A. (CENG, DRF/SPh/MDIH, 38 - Grenoble (France))

SO Phys. Lett., A. (8 Jun 1987) v. 122(3/4) p. 209-214
ISSN 0375-9601; CODEN PYLAA

AB From muSR investigations of the high temperature superconductor La1.85Sr0.15CuO4-y it is shown that there is a very small part of the sample that exhibits a well developed Meissner effect. This indicates that the sample, although it is showing the characteristic drop in resistivity and change in susceptibility at the superconducting transition, does not contain "bulk" superconducting regions. The penetration depth of the externally applied magnetic field can be estimated from the change in line width of the muSR signal to be about 2300 A and its temperature dependence can be interpreted in terms of the BCS theory. (orig.)

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L1 ANSWER 20 OF 166

TI Bonds, bands, charge transfer excitations and superconductivity of YBa2Cu3O7-delta.

AU Yu, J.; Massidda, S.; Freeman, A.J. (Dept. of Physics and Astronomy and Materials Research Center, Northwestern Univ., Evanston, IL (USA)); Koelling, D.D. (Materials Science and Tech. Div., Argonne National Lab., IL (USA))

SO Phys. Lett., A. (8 Jun 1987) v. 122(3/4) p. 203-208
ISSN 0375-9601; CODEN PYLAA

AB The different energy dispersion and Fermi surfaces arising from the bands which dominate the electronic band structure near EF in YBa2Cu3O7-delta are presented and related to their orbital charge density distributions for the Cu2 plane and Cu1 chain arrangements thereby relating their physical and chemical descriptions. Magnetic isolation of the Y ions is found to explain the existence of high Tc superconductivity of the RBa2Cu3O7-delta compounds (where R = magnetic heavy lanthanides). A conventional phonon mechanism is found to be inadequate for obtainin high Tc. Charge transfer excitations ("excitons") of occupied Cu1-O dppi bonding orbitals into their empty Cu1-O dpsigma antibonding orbital partners, result in poorly screened Cu3+-Cu4+-like charge fluctuations which induce attractive interactions (-U centers) both in the chains and to the 2D (Cu2) bands - thereby promoting the high Tc via exchange of these "excitons". (orig.)

L1 ANSWER 21 OF 166

TI Electronic structure and properties of YBa2Cu3O7-delta, a low dimensional, low density of states superconductor.

AU Massidda, S.; Yu, J.; Freeman, A.J. (Dept. of Physics and Astronomy and Materials Research Center, Northwestern Univ., Evanston, IL (USA)); Koelling, D.D. (Materials Science and Tech. Div., Argonne National Lab., IL (USA))

SO Phys. Lett., A. (8 Jun 1987) v. 122(3/4) p. 198-202
ISSN 0375-9601; CODEN PYLAA

AB The electronic structure of the high Tc superconductor, YBa2Cu3O7-delta, determined from highly precise all-electron local density calculations yields a relatively simple highly 2D electronic band structure consisting of two 2D Cu2-O and two 1D Cu1-O bands (one almost empty and one almost full at delta=0, becoming full at delta>=0.1) near EF. Detailed features (multi-peaks) of the density of states (DOS) are correlated with the band structure of the 36 Cu-O band complex. Surprising features include: 1. the low DOS at EF, especially for delta>=0.1 which is much longer than that in La2-xSrxCuO4 - in agreement with experiment - and 2. a relatively large magnetic Stoner factor. (orig.)

L1 ANSWER 22 OF 166
TI Microwave conductivity of beta-(ET)2IAuI.
AU Tanner, D.B.; Jacobsen, C.S. (Physics Lab. 3, Technical Univ. of Denmark, Lyngby); Williams, J.M.; Wang, H.H. (Chemistry Div., Argonne National Lab., IL (USA))
SO Phys. Lett., A. (8 Jun 1987) v. 122(3/4) p. 183-186
ISSN 0375-9601; CODEN PYLAA
AB The 34 GHz microwave conductivity of the 2:1, beta-phase compound of bis(ethylenedithio) tetrathiafulvalene (BEDT-TTF or "ET") with the diiodoaurate anion (IAuI)- has been measured from 20 to 300 K. This material is an ambient-pressure organic superconductor with Tcapprox.=5 K. A cavity perturbation technique in the skin-depth-limited regime was used. The conductivity varies as the inverse square of the temperature over the entire temperature range. The room-temperature conductivity is 6 OMEGA-1 cm-1, rather low for the conductivity of an organic "metal". (orig.)

L1 ANSWER 23 OF 166
TI Upper limit on the resistivity of La1.85Sr0.15CuO4.
AU Wellstood, F.C.; Ferrari, M.J.; Zettl, A.; Cohen, M.L. (Dept. of Physics, Univ. of California, Berkeley (USA)); Stacy, A.M. (Dept. of Chemistry, Univ. of California, Berkeley (USA)); Clarke, J. (Materials and Chemical Sciences Div., Lawrence Berkeley Lab., CA (USA))
SO Phys. Lett., A. (25 May 1987) v. 122(1) p. 61-63
ISSN 0375-9601; CODEN PYLAA
AB The stability of a shielding current in a hollow cylinder of La1.85Sr0.15CuO4 has been studied with a superconducting quantum interference device (SQUID). From the observed lack of decay of the current an upper limit of 3x10-17 OMEGA cm has been established on the resistivity at 4.2 K. (orig.)

L1 ANSWER 24 OF 166
TI Simple model for lattice parameters and Tc of superconductors with the K2NiF4 structure.
AU Malozemoff, A.P. (IBM Thomas J. Watson Research Center, Yorktown Heights, NY (USA))
SO Mater. Res. Bull. (May 1987) v. 22(5) p. 701-709
ISSN 0025-5408; CODEN MRBUA
AB A simple "internal stress" approach, based on basal plane lattice parameter variation with alkaline earth substitution, is proposed for predicting the superconducting transition temperature Tc of Ca, Sr and Ba-doped La2CuO4 superconductors. Alkaline earth solutes on the La site directly cause volume changes and Poisson distortions, and indirectly cause Jahn-Teller distortions and contractions of the transition metal site. With an empirical correlation between lattice parameter and Tc, this analysis predicts the effect of hydrostatic pressure, rationalizes observed lattice parameters and suggests other solutes. (orig.)

L1 ANSWER 25 OF 166

TI The generalized Curie principle, the Hermann theorem, and the symmetry of macroscopic tensor properties of composites.

AU Wadhawan, V.K. (Neutron Physics Div., Bhabha Atomic Research Centre, Trombay, Bombay (India))

SO Mater. Res. Bull. (May 1987) v. 22(5) p. 651-660
ISSN 0025-5408; CODEN MRBUA

AB The symmetry of tensor properties of composite materials is discussed in terms of the generalized Curie principle (including the effect of symmetrizing factors), as well as the Hermann theorem concerning the relationship between the rank of a tensor property and the presence or absence of isotropy in a plane normal to a given symmetry axis. A simple configuration for achieving this transverse isotropy for the elastic behaviour of laminated structures is proposed as an illustration of the practical application of the Hermann theorem. A recently published theorem about the point symmetry of composite ojbects is shown to be invalid. (orig.)

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L1 ANSWER 26 OF 166

TI Nonstoichiometry and superconductivity in LaxMo6Sy.

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SO Mater. Res. Bull. (May 1987) v. 22(5) p. 585-592
ISSN 0025-5408; CODEN MRBUA

AB Lanthanum Chevrel type compounds, LaxMo6Sy (0.9<=x<=1.1, and 7.0<=y<=8.0 in nominal content), are prepared by sintering at 1623 and 1773 K in a vacuum sealed Mo container. All of the samples heated at 1623 K accompany with impurity phases. The hexagonal c/a ratio varies from 1.2488 to 1.2620, and the superconducting critical temperature Tc is a monotonic function of c/a. On the other hand, the samples heated at 1773 K have a single phase in the region of 1.0<=x<=1.1, and 7.4<=y<=8.0. They show the c/a ratios from 1.220 to 1.254, but Tc is almost constant and independent of c/a. These relations between Tc and c/a are explained by the dependence of the Fermi level on the c/a ratio. (orig.)

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