
Contents

3. PHYSICAL PROPERTIES

The breaking torque concept in a sintered LaSrCuO sample.....	1
L. Fruchter (Orsay, France), C. Giovannella (Rome, Italy) and I. A. Campbell (Orsay, France)	
Study of laser-deposited $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ thin films by Rutherford backscattering, X-ray photoemission and X-ray Auger spectroscopies.....	13
F. Roche, A. Balzarotti, M. DeCrescenzi, N. Motta, M. Sastry, F. Patella (Rome, Italy), J. Perriere, F. Kerherve and G. Hauchecorne (Paris, France)	
Scanning Auger microscopy as applied to the analysis of highly textured $\text{YBa}_2\text{Cu}_3\text{O}_x$ thin films.....	23
E. G. Keim (Enschede, The Netherlands), J. Halbritter (Karlsruhe, F.R.G.), B. Häuser and H. Rogalla (Enschede, F.R.G.)	
Raman characterization of a $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ superconductor crystal and related compounds.....	31
J. Sapriel, L. Pierre, D. Morin, J. C. Toledano, J. Schneck, H. Savary, J. Chavignon, J. Primot, C. Daguet, J. Etrillard (Bagneux, France) and H. Boyer (Longjumeau, France)	
Critical currents and magnetic relaxation of epitaxial $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ films.....	39
R. Griessen, C. F. J. Flipse, C. W. Hagen, J. Lensink (Amsterdam, The Netherlands), B. Dam and G. M. Stollman (Eindhoven, The Netherlands)	
Scaling in superconducting ceramics.....	49
P. Peyral, C. Lebeau, J. Rosenblatt, A. Raboutou, C. Perrin, O. Peña and M. Sergent (Rennes, France)	
High T_c superconductors in the system Bi-Pb-Sr-Ca-Cu-O.....	55
A. Ehmman, S. Kemmler-Sack, R. Kiemel, S. Lösch, W. Schäfer, M. Schlichenmaier (Tübingen, F.R.G.), L. Kan, B. Elschner (Darmstadt, F.R.G.), R. Gross, K. Hipler, R. P. Huebener (Tübingen, F.R.G.), S. Döttinger, W. Forkel, C. Schöll (Stuttgart, F.R.G.), H. R. Khan and Ch. J. Raub (Schwäbisch Gmünd, F.R.G.)	
Microstructure and properties of Bi-Ca-Sr-Cu-O superconductors.....	63
J. H. P. M. Emmen, V. A. M. Brabers, W. J. M. De Jonge, C. V. D. Steen, J. H. J. Dalderop, P. M. A. Geppaart and K. Kopinga (Eindhoven, The Netherlands)	
Surface resistance of polycrystalline high T_c superconductors between 3 and 90 GHz...	71
M. Hein, G. Müller, H. Piel (Wuppertal, F.R.G.), U. Klein and M. Peiniger (Bergisch-Gladbach, F.R.G.)	
Influence of the a.c. and d.c. electrical current density on the normal-superconductor transition in high-temperature superconductors.....	77
J. A. Veira, G. Domarco, J. Maza, F. Miguélez, J. J. Ponte, C. Torrón, F. Vidal (Santiago de Compostela, Spain), J. Amador, M. T. Casais, C. Cascales, A. Castro, M. de Pedro and I. Rasines (Madrid, Spain)	
Critical currents and dissipation in bulk $\text{YBa}_2\text{Cu}_3\text{O}_7$	83
R. Meisels, S. Bungre and A. D. Caplin (London, U. K.)	
Critical currents in high-quality YBaCuO ceramics investigated by magnetization, a.c. susceptibility and electrical transport.....	89
E. Babić, D. Drobac, J. Horvat, Ž. Marohnić and M. Prester (Zagreb, Yugoslavia)	
Glass behavior and power dissipation in HTSC near the transition point.....	97
P. G. Vassilev and M. Marinova (Sofia, Bulgaria)	

Effect of oxygen concentration on the superconducting transition of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ in high magnetic fields	103
G. Fuchs, A. Gladun, R. Mueller, M. Ritschel, G. Krabbes, P. Verges and H. Vinzelberg (Dresden, G.D.R.)	
Structural, electrical and magnetic properties of aluminium-, gallium- and iron-substituted $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$	109
R. Suryanarayanan, G. T. Bhandage, M. Rateau, O. Gorochov, H. Pankowska, A. M. Ghorayeb, G. Villers and C. Vard (Meudon, France)	
X-ray photoelectron spectroscopy of Y-Ba-Cu-O thin films	115
H. Guyot and R. Cinti (Grenoble, France)	
Temperature effects on the phonon spectrum in $\text{YBa}_2\text{Cu}_3\text{O}_7$ single crystals and thin films	125
R. Feile, P. Leiderer (Mainz, F.R.G.), J. Kowalewski, W. Assmus (Frankfurt, F.R.G.), J. Schubert and U. Poppe (Jülich, F.R.G.)	
Characterization of Bi-Sr-Ca-Cu-O superconducting materials by Raman spectroscopy	133
P. V. Huong, O.-K. Eunok (Talence, France), H.-K. Keu, K. Don and S.-C. Jae (Seoul, Korea)	
Raman and IR studies on the superconducting Bi-Sr-Ca-Cu-O system	139
E. Faulques (Nantes, France), M. Matus, H. Kuzmany (Vienna, Austria) and P. Knoll (Graz, Austria)	
Optical reflectance and magnetic susceptibility measurements of inter- and intragrain properties of polycrystalline YBaCuO and BiSrCaCuO	147
W. Lang and W. Markowitsch (Vienna, Austria)	
Acoustic measurements on high- T_c superconductors in the systems Y-Ba-Cu-O and Bi,Pb-Sr-Ca-Cu-O	153
P. Lemmens, F. Stellmach, J. Wynants, S. Ewert (Templergraben, F.R.G.), A. Comberg, H. Passing and G. Marbach (Aachen, F.R.G.)	
Anisotropic transport properties of $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-x}$ and $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_y$ single crystals ..	159
E. Schweiger, G. Leising, K. Roth, O. Leitner, H. Kahlert and P. Pölt (Graz, Austria)	
Rounding of the electrical resistivity near T_c of various high-temperature superconductors	165
F. Vidal, J. A. Veira, C. Torrón, J. J. Ponte, F. Miguélez, J. Maza, G. Domarco (Santiago de Compostela, Spain), J. Amador, M. T. Casais, C. Cascales, A. Castro, M. de Pedro and I. Rasines (Madrid, Spain)	
A magnetic study of polycrystalline $\text{Bi}_2\text{Sr}_{1.5+x}\text{Ca}_{1.5-x}\text{Cu}_2\text{O}_{8+\delta}$ and $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{10+\delta}$ high- T_c superconductors	171
M. Rosenberg, W. Chojetzki, M. Mittag, R. Job, R. Wernhardt, H. Bach and P. Stauche (Bochum, F.R.G.)	
Specific heat of Bi-Ca-Si-Cu-O below 1 K	177
C. Gang, W. Schram, R. W. van der Heijden, A. T. A. M. de Waele, H. M. Gijssman, J. H. P. M. Emmen, K. Kopinga and V. A. M. Brabers (Eindhoven, The Netherlands)	
Effect of hydrogen on high- T_c superconducting ceramics	183
J. N. Daou, M. Nicolas, J. P. Burger, P. Vajda, J. Lesueur and L. Dumoulin (Orsay, France)	
Low-temperature specific heat of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$: comparison with some other layered oxides	191
J. M. D. Coey, S. von Molnar and A. Torressen (Yorktown Heights, NY, U.S.A.)	
Hydrogen absorption in single-crystal $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ and its effect on superconductivity	195
J. M. D. Coey, X. Z. Wang, K. Donnelly and J. F. Lawler (Dublin, Ireland)	

4. MATERIALS, SINGLE CRYSTALS, PHASE DIAGRAMS

Crystal growth of oxide superconductors	199
H. J. Scheel (Lausanne, Switzerland)	
Structural and physical properties of the tetragonal superconductors $\text{LaBaACu}_3\text{O}_{7-\delta}$ (A = Ca and Sr)	213
W. T. Fu, H. W. Zandbergen, C. J. van der Beek, A. A. Verheijen, L. J. de Jongh (Leiden, The Netherlands) and V. A. M. Brabers (Eindhoven, The Netherlands)	
Transport properties of BiSrCaCuO and YBaCuO	221
A. M. Ghorayeb, M. Rateau, H. Pankowska, R. Suryanarayanan and O. Gorochov (Meudon, France)	
Oxygen transport in superconducting ceramic $\text{YBa}_2\text{Cu}_3\text{O}_7$ and $(\text{BiO}_2)\text{Sr}_2\text{Ca}_{n-1}\text{Cu}_n\text{O}_{2n+2}$ samples	229
X. Turrillas, J. A. Kilner, I. Kontoulis and B. C. H. Steele (London, U.K.)	
Passivation of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ single crystals by fluorination treatments	237
A. Tressaud, J. P. Chaminade, K. Amine, L. Nganga, J. M. Dance, M. Lahaye, J. P. Bonnet, B. Chevalier, J. Etourneau (Talence, France) and R. Tournier, (Grenoble, France)	
High-resolution lattice images of $\text{ErBa}_2\text{Cu}_3\text{O}_x$ and $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_x$ observation at 4.2 K	243
H. Yoshida (Osaka, Japan), Y. Yokota, H. Hashimoto (Okayama, Japan), M. Iwatsuki and Y. Harada (Tokyo, Japan)	

5. THIN FILMS

High T_c YBaCuO and BiSrCaCuO superconducting thin films deposited by pulsed excimer laser evaporation	249
E. Fogarassy, C. Fuchs, J. P. Stoquert, P. Siffert (Strasbourg, France), J. Perrière and F. Rochet (Paris, France)	
Plasma oxidation of high T_c superconducting thin films	257
H.-U. Habermeier, W. Ebert, S. Kalt, G. Wagner and G. Mertens (Stuttgart, F.R.G.)	
Characterization of sputtered YBaCuO and SmBaCuO thin films: structural properties and role of thermal treatment	263
C. Escribe-Filippini, P. L. Reydet, J. Marcus and M. Brunel (Grenoble, France)	
High J_c thin films of $\text{YBa}_2\text{Cu}_3\text{O}_7$	271
R. G. Humphreys, J. S. Satchell, N. G. Chew, J. A. Edwards, A. G. Cullis and O. D. Dosser (Malvern, U.K.)	
Direct production and properties of sputtered epitaxial $\text{YBa}_2\text{Cu}_3\text{O}_7$ thin and ultrathin films on (100) and (110) SrTiO_3	277
H. Schubert, U. Poppe and W. Sybertz (Jülich, F.R.G.)	
Low temperature preparation of superconducting $\text{YBa}_2\text{Cu}_3\text{O}_x$ thin films on LiNbO_3 , silicon and SrTiO_3 by r.f.-magnetron sputtering	287
H. Schmidt, R. Bruchhaus, O. Eibl, W. Hoesler (Munich, F.R.G.), L. Hofmann (Garching, F.R.G.), W. Holubarsch and G. Zorn (Munich, F.R.G.)	
Channelling behaviour of epitaxial $\text{YBa}_2\text{Cu}_3\text{O}_7$ films with various orientations	295
Q. Li, F. Weschenfelder, O. Meyer, X. X. Xi, G. Linker and J. Geerk (Karlsruhe, F.R.G.)	
Preparation of high- T_c YBaCuO thin films on YSZ and silicon substrates by r.f.-magnetron sputtering	303
D. Dubreuil, G. Garry, Y. Lemaître, L. Rogier and D. Dieumegard (Orsay, France)	
Preparation and characterization of YBCO thin films on silicon	311
J. Tate, P. Berberich, W. Dietsche and H. Kinder (Garching, F.R.G.)	
Co-evaporated Y-Ba-Cu-O thin films on sapphire substrates	317
H. Ohlsén, J. Hudner and L. Stolt (Kista, Sweden)	

High critical currents and flux creep effects in superconducting $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ films e-gun deposited using a BaF_2 source	325
P. H. Kes, P. Berghuis, S. Q. Guo (Leiden, The Netherlands), B. Dam and G. M. Stollman (Eindhoven, The Netherlands)	
Preparation of YBaCuO superconducting thin films with zero resistance at 85 K by multilayer deposition on sapphire substrates	333
D. Chambonnet, C. Fages, C. Belouet (Marcoussis, France) and D. Ravot (Meudon, France)	
Preparation of thin $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ layers on various substrates (LiNbO_3 , MgO , SrTiO_3) by d.c.-magnetron sputtering	341
A. Höhler, H. Neeb (Giessen, F.R.G.) and C. Heiden (Jülich, F.R.G.)	
Preparation, microwave and magnetic field response of YBaCuO thin film microbridges.	345
B. Häuser, B. B. G. Klopman and H. Rogalla (Enschede, The Netherlands)	
Preparation of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ thin films by inverted cylindrical magnetron sputtering ..	349
X. X. Xi, G. Linker, O. Meyer and J. Geerk (Karlsruhe, F.R.G.)	
The growth of YBaCuO thin films on various substrates as a function of deposition temperature	357
G. Linker, X. X. Xi, O. Meyer, Q. Li and J. Geerk (Karlsruhe, F.R.G.)	
Characterization of YBaCuO films by a.c. susceptibility measurements	363
Ch. Neumann and P. Ziemann (Konstanz, F.R.G.), J. Geerk and H. C. Li (Karlsruhe, F.R.G.)	
Magnetization and hysteresis properties of superconducting $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ thin films...	369
C.-J. Liu, R. Buder, C. Escribe-Filippini, J. Marcus, P. L. Reydet and C. Schlenker (Grenoble, France)	
Resputtering effects in sputtered $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$ films	377
G. Springholz, P. Pölt, K. Aichholzer, R. Abt, G. Leising, O. Leitner and P. Kranebitter (Graz, Austria)	
Superconducting transitions in BiPbSrCaCuO : thin films and ceramics	385
H. Raffy, J. Arabski, A. Vaurès (Orsay, France), P. Tremblay (Paris, France), S. Megtert, R. Reich and P. Monod (Orsay, France)	
Superconducting Bi(Pb)-Ca-Sr-Cu-O films and bulk samples made by thermal decomposition of metal carboxylates	393
M. Klee, G. Marbach, S. Stotz (Aachen, F.R.G.) and J. W. C. De Vries (Eindhoven, The Netherlands)	
High T_c superconducting films prepared by pyrolysis of an ultrasonic-generated aerosol	399
M. Langlet, E. Senet, J. L. Deschanvres, G. Delagouglise, F. Weiss and J. C. Joubert (Saint Martin d'Hères, France)	
Single-step preparation of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ superconducting thin films by laser ablation ..	407
J. Fröhlingsdorf, W. Zander and B. Stritzker (Jülich, F.R.G.)	
Superconducting properties of laser evaporated epitaxial Y-Ba-Cu-O thin films	413
B. Roas, L. Schultz and G. Endres (Erlangen, F.R.G.)	
The preparation of YBCO thin films by a four ion beam co-deposition system	419
S. Michel, J. H. James, B. Dwir, M. Affronte, B. Kellett and D. Pavuna (Lausanne, Switzerland)	
Superconducting properties of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ thin films deposited on silicon covered by epitaxial stabilized ZrO_2	429
J. C. Bruyère, J. Pluta, M. Brunel, P. Muret (Grenoble, France), C. Schwebel and G. Gautheri (Orsay, France)	
Electron tunnelling and critical current behaviour of patterned $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$ films...	435
M. A. M. Gijs, B. Dam, M. G. J. Heijman and Th. A. W. van Elswijk (Eindhoven, The Netherlands)	

Nature of the granular structure in low-temperature helium-irradiated YBaCuO thin films	443
P. Nédellec, J. Lesueur, A. Traverse, H. Bernas, L. Dumoulin (Orsay, France) and R. B. Laibowitz (Yorktown Heights, NY, U.S.A.)	
Screen-printed superconducting Bi-Ca-Sr-Cu-O thick films on ceramic substrates	451
J. Levoska, A. Uusimäki, J. Hagberg, T. Kokkomäki, T. Murtoniemi, R. Rautioaho and S. Leppävuori (Oulu, Finland)	
6. APPLICATIONS	
The development of SQUID magnetometers using bulk ceramic superconductors	461
C. E. Gough, M. S. Colclough, S. P. Harrop, M. N. Keene and C. M. Muirhead (Birmingham, U.K.)	
Conception and operation of a Meissner-Ochsenfeld effect motor with high T_c superconductors	473
E. Bochenek, R. Fischer and H. Voigt (Frankfurt, F.R.G.)	
A non-vacuum, room-temperature process for the application of solderable contacts to ceramic high- T_c superconductors	481
A. Lorenz, E. Bochenek, R. Fischer and R. Schneider (Frankfurt, F.R.G.)	
AUTHOR INDEX	487
SUBJECT INDEX	491