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R.F. Tournier 1827
- High-Strength Nb₃Sn Wire Development for Compact Superconducting Magnets**
K. Watanabe, S. Awaji and G. Nishijima 1841
- Development of Ag-Sheathed Bi2223 Tapes with Interfilamentary Resistive Barriers for Reducing AC Losses**
A. Oota, R. Inada, Y. Iwata, Y. Nakamura and P.X. Zhang 1849
- Coated Conductor: Some Critical Aspects from Substrate to Device**
P. Odier, A. Girard, Y. Cointe, S. Donet, Z.M. Yu, T. Caroff, A. Cavallaro and A. Guibadj 1855
- Artificial Nano-Scale Precipitates for Flux Pinning in YBa₂Cu₃O_{7-δ} Thin Films and Coated Conductors**
C. Cai, J. Zhang, Y. Lu, Hänisch, R. Hühne and B. Holzapfel 1865
- Continuous Deposition of Buffer Layers for YBCO Coated Conductor Using Reactive Magnetron Sputtering**
J. Yang, H.Z. Liu, F. Qu, H. Zhang, Q. Zhou and H.W. Gu 1871
- New Cu-Ni Substrate for Coated Conductors**
Z.M. Yu, L. Zhou, P. Odier and P.X. Zhang 1877
- A New Series of Potential Buffer Layers for REBCO Coated Conductor**
M.H. Pu, G. Li, X.H. Du, Y.B. Zhang, H.M. Zhou, R.P. Sun, Z.Q. Wang and Y. Zhao 1881
- Influence of Oxygen Partial Pressure on the Microstructures and Critical Current Densities of PMP-Processed YBCO Bulks with Submicron Y₂BaCuO₅ Particles**
S.K. Chen, L. Zhou, K.G. Wang, P.X. Zhang, Y. Feng, H.H. Wen and S.L. Li 1887
- Effect of Ultrafine Gd211 on Processing and Superconducting Properties of Gdbacu Bulk Superconductors**
Y.L. Jiao, L. Xiao, M.H. Zheng, X.H. Ma, X.T. Su and Q.Z. Yan 1893
- Effect of Temperature on La_{1.85}Sr_{0.15}CuO₄ Single Crystal Growth by Floating Zone Method**
X.Q. Xiang, J.F. Qu, Y.Q. Zhang, X.L. Lu and X.G. Li 1897
- Neutron Diffraction Studies of the Zr/Nb Effects on the Nb₃Sn Phase Formation of Monofilament Wires**
J.L. Soubeyroux, C.W. Zhang, A. Sulpice, L. Zhou, X.D. Tang and R.F. Tournier 1901
- Critical and Irreversibility Temperature Study of Internal-Sn Nb₃Sn Superconducting Wires**
C.W. Zhang, A. Sulpice, J.L. Soubeyroux, R.F. Tournier, L. Zhou, X.D. Tang, C. Verwaerde and G.K. Hoang 1907
- Effect of Heat Treatment on Superconducting Properties of Pure and Ti, Zr-Doped MgB₂ Superconducting Wires Fabricated by In Situ PIT Method**
G. Yan, Y.F. Lu, Y. Feng, P.X. Zhang, L. Zhou, A. Sulpice and E. Mossang 1913
- MgB₂ Superconducting Films Fabricated on Copper Substrate by Hybrid Physical-Chemical Vapor Deposition**
F. Li, T. Guo, K.C. Zhang, C.P. Chen and Q.R. Feng 1919
- Transverse Compressive Stress Effects on the Critical Current of Bi-2223 Tapes**
C.S. Li, E. Mossang, B. Bellin, A. Sulpice, A. Antonevici and P.X. Zhang 1923
- Round Multifilament Bi-2212/Ag Wire Development for High Field Magnet Applications**
H.P. Miao, K.R. Marken, M. Meinesz, B. Czabaj and S. Hong 1927
- Finite Element Analysis of Quench Propagation Velocity in Bi-2223/Ag Superconducting Multifilamentary Tape**
C.L. Wu and H.L. Yang 1931
- High Magnetic Field Superconducting Magnet Technology and its Applications**
Q.L. Wang, Y. Dai, S. Song, Y. Lei, B. Zhao, H. Wang, C. He, H. Wang, L.G. Yan and L. Lin 1935
- A New HTS/PMG Maglev Design Using Halbach Array**
Z.G. Deng, J. Zheng, H.H. Song, S.Y. Wang and J.S. Wang 1941
- Ground and Excited States of the Two and Three Dimensional Bipolaron in a Quantum Dot**
Y.H. Ruan, G.W. Pan and Q.H. Chen 1945
- Study on the Relation between Electronic Structure and Tc for Cuprate Superconductor Systems**
L.G. Zhang, N. Chen, B.Y. Fang and Y. Li 1951

The Progress on Study of Isotope Effects in High T_C Copper Oxide Superconductors Y. Chen, X.M. Huang, J.W. Wang and X.S. Zeng	1957
Study on the Precursory Powder for Bi-2223 Tape H.L. Zheng, X.Y. Xu, X.M. Xiong, G.Q. Liu, Q.B. Hao, C.S. Li, P.X. Zhang and Y.F. Lu	1961
Influences of Preparation Conditions on Melting and Reformation Behaviors of (Bi,Pb)-2223 Core in the Ag-Sheathed Tape J.Y. Li, H.L. Zheng, J.G. Li, C.S. Li, Y.F. Lu and L. Zhou	1967
Influence of Sheath Materials on the Strain Tolerance of Bi-2223 Superconducting Tapes X.Q. Huang, Z.Y. Lu, Y.F. He, J. Sun and J.X. Wang	1971
Bending Strain Effects on the Critical Current of Bi-2223 Superconducting Tapes by Pure Bending Method Z.Y. Lu, X.Q. Huang, Y.F. He, J. Sun and J.X. Wang	1975
HTS High Q Resonant Controller J.X. Jin, C.M. Zhang, Y.G. Guo and J.G. Zhu	1979
Study on Minimum Propagation Current of Bi-2223/Ag Superconducting Multifilament Tape Z.M. Bai, C.L. Wu, H.L. Yang and J.X. Wang	1985
Electrical Properties of a High-T_C Superconductor-Polymer Compersite F.G. Chang, K. Fang and G.L. Song	1989
Research of Secondary Gel Technic to Synthesize Bi₂Sr₂CaCu₂O_y Superconductor H.Z. Yang, W.S. Chen, Z.Z. Zhi, W. Wei, C.B. Zhang and Y. Qi	1993
Influence of Processing Parameters on the Texture Formation in Powder Metallurgic Ni-5at.%W Substrate Tapes S.K. Chen, C.F. Liu, P.X. Zhang and L. Zhou	1997
Textured YBCO Films Derived from Low-Fluorine-Content Solution Y.Q. Chen, G.Y. Zhao, L. Lei and D.C. Chen	2003
Preparation of YBCO Superconducting Films by Sol-Gel Process G.Y. Zhao, H.L. Zhang, R.Z. Xue, Y.Q. Chen and L. Lei	2007
Epitaxial Growth of CeO₂ Buffer Layers on Both YSZ Single Crystal and Textured Ni5W Substrates by MOD Method Y.X. Zhang, H. Suo, Y. Zhao, M. Liu, R. Wang, D. He, L. Ma and M.L. Zhou	2011
Investigation Texture in Ni-W Alloy Substrates for Coated Conductors Y. Zhao, H. Suo, M. Liu, D. He, Y.X. Zhang, L. Ma and M.L. Zhou	2015
Te Substitution Effect in Low-Dimensional Superconductor NbSe_{2-x}Te_x (x = 0, 0.1, 0.2) E. Ahmed, L.J. Li, C. He, H.T. Wang, J.Q. Shen and Z. Xu	2019
Effects of Heat Treatments on the Nb₃Sn Composite Strands M. Liang, P.X. Zhang, X.D. Tang, J.S. Li, C.G. Li, K. Li, M. Yang, C.J. Xiao and L. Zhou	2023
Deposition of MgB₂ Thin Films on Nb Substrates Using an In Situ Annealing PLD Method Y. Zhao, Y.S. Wu, S.X. Dou, T. Tajima and O.S. Romanenko	2027
Influence of Preparation Process on Microstructure, Critical Current Density and T_c of MgB₂/Fe/Cu Wires Y.F. Wu, G. Yan, J.S. Li, Y. Feng, S.K. Chen, H.P. Tang, H.L. Xu, C.S. Li, P.X. Zhang and Y.F. Lu	2031
Influence of Mg and B Stoichiometry on the Formation Behavior of MgB₂ Phase S.C. Yan, G. Yan, Y.F. Lu, Y. Feng and L. Zhou	2035
Comparative Studies of Nanoscale SiC Whisker and Si/N/C Doped MgB₂ Tapes X.P. Zhang, Y.W. Ma, Z.S. Gao, D.L. Wang, Z.G. Yu, G. Nishijima, K. Watanabe and J.D. Guo	2041
Effect of Thickness on Properties of MgB₂ Thin Films C.G. Zhuang, C.P. Chen, L.L. Ding, L.P. Chen, K.C. Zhang, F. Li, Q.R. Feng and Z.Z. Gan	2047
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Effects of Nano-Al Doping on Superconductivity and Microstructure of MgB₂ Bulk Superconductors F.F. Guo, Z. Xu, H.L. Xu and Y. Feng	2055
Improvements on the Properties of the In Situ MgB₂/Fe Tapes Annealed by Spark Plasma Sintering Technique L. Ma, H. Suo, Y. Wang, H.X. Ma, M. Liu, Y.M. Li, Y. Zhao, Z.L. Zhang and M.L. Zhou	2059

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Solution Phase Synthesis of Superconducting La₂CuO₄ Microspheres G.Q. Zhang, X.L. Lu, J.F. Qu, W. Wang, G. Li and X.G. Li	2071
The Effects of BaF₂ Addition on Melt-Processed YBa₂Cu₃O_{7-x} Superconductors J.Q. Feng, L. Zhou, Y.F. Lu, P.X. Zhang, X.Y. Xu, S.K. Chen and C.P. Zhang	2075
Levitation Capability of a Bulk YBa₂Cu₃O_{7-x} with NdFeB Guideway by Two Magnetization Methods J. Zheng, J. Li, Z.G. Deng, H.H. Song, S.Y. Wang and J.S. Wang	2079
Crystal Growth Mechanism of YBCO Superconductors Prepared by Unidirectional Solidification Method E.Z. Gao, J.S. Li, R. Hu, H.C. Kou, H.T. Cao, P.X. Zhang and L. Zhou	2085
Analysis on the Ceasing Mechanism of the YBCO Crystal Growth during Melting Growth Process by Unidirectional Solidification H.T. Cao, R. Hu, H.C. Kou, J.S. Li, E.Z. Gao, H.Z. Fu and L. Zhou	2091
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