

Siu-Wai Chan

Professor of Materials Science and Engineering
Dept. of Applied Physics and Applied Mathematics

Henry Krumb School of Mines,
School of Engineering and Applied Science,
Columbia University, New York, NY 10027
212-854-8519(tel), 212-854-8257(fax),
email: sc174@columbia.edu

*RESEARCH
INTERESTS*

Nano-particles in Catalysis, Grain Boundaries, Interfaces, and
Defects in Thin Films, and Electronic Oxides

EDUCATION

Massachusetts Institute of Technology, 1985, Sc.D. in Materials
Science and Engineering (accelerated with the MS by-pass);
Columbia University, 1980, B.S. in Metallurgy & Materials Sc.
(Top student in the Metallurgy & Materials Sc, Francis B.F.
Rhodes Prize)

*PROFESSIONAL
EXPERIENCE*

Full Professor since 2002,
Co-Chair of the Solid State Program since Jan 2001,
Co-chair of Materials Science and Engineering Program and
Committee from July 1997 to Jan 1999.
Executive Committee Member and Outreach Director of Materials
Research Science & Engineering Center 1998-2009,

Associate Professor Columbia University, 1990-2002,
90-93 Metallurgy and Mining, 93-98 Chemical Engineering and
Materials, 98-present Applied Physics and Applied Mathematics.

Visiting Professor, as the Tan fellow at Nanyang Technological
Univ., Materials Dept., Singapore 2004 under

Visiting Professor, as NSF 2004 Advanced Fellow, Univ. of
Washington, Dept. of Materials Sc. and Engr., Seattle, WA;

2004 Visiting Professor, as the Guggenheim Fellow Univ. of
California San Diego, Physics Dept. of Physics, San Diego,
California (host Prof. Robert Dynes, Chancellor of UCSD 2003 &
President of Univ. of California 2004--);

Visiting Scientist, (full-salary support from IBM Microelectronics)
IBM Watson Research Lab., 1999.

Visiting Scientist, Bitter Magnet Lab, 1993-1995.

Member of Technical Staff, Superconductors, Bellcore, Red Bank, NJ,
1986-1990. Member of Technical Staff, Surface Treatments, Bell-
Labs & Bellcore, Murray Hill, NJ, 1985.

Prof. S.-W. Chan con't

*PROFESSIONAL
ACTIVITIES*

Member of the American Ceramic Society (Acers)
Strategic Planning Committee 2009-2010,
Chair of the Electronics Division of Acers 2006-2007,
Chair Symposia at Acers Meetings in 2001 to 2008,
Chair Symposia on High Temperature Superconductors at 1998 &
91 Materials Research Society (MRS) Fall Meetings;
Chair for various sessions at different MRS and Acers Meetings,
President 1994 & Secretary 1993 of the Materials Science Club;
Panelist for National Science Foundation's program on Materials
Research Science and Engineering Centers,
Reviewer on Materials Science Projects for NSF,
Reviewer on Materials Science Projects for Hong Kong University
Research Council;
Reviewer for Philosophical Magazine, Applied Physics Letters,
Journal of Applied Physics and Journal of Materials Research.

ASSOCIATIONS

American Physical Society (APS);
The American Ceramic Society (Acers) Fellow since 2008;
International Committee of Diffraction Data (ICDD) elected
member 2005;
Materials Research Society (MRS) Faculty Advisor of the CU
Student Chapter since 1993;
ASM International (ASM);
Association for Iron & Steel Technology (AIST);
Society of Women Engineers (SWE) member since 1992;
The Minerals, Metals, Materials Society (TMS) member since
1992.

*HONORS &
AWARDS*

BASF Catalysis Research Award 2008-2011,
Fellow of the American Ceramics Society 2008,
Tan Chin Tuan Fellowship (Singapore Nanyang Technological
University) 2004,
Advance Fellow of Univ. of Washington and National Science
Foundation 2004,
John Simon Guggenheim Fellowship 2003,
IBM Faculty Award 1998,
Outstanding Woman Scientist Award (Women in Science NY City)
1997,
Presidential Faculty Fellow from the White House and National
Science Foundation (NSF) 1993,
Very Important Parent from Luther Lee Emerson School in Demarest,
NJ 1992

Prof. S.-W. Chan con't

DuPont Faculty Award 1991 & 1992,
Tau Beta Pi elected 1979;
Sigma Xi elected 1982;
Columbia Univ. SEAS Francis B.F. Rhodes Prize 1980.

PUBLICATIONS 106 publications with 69 papers in referred journals.

PRESENTATIONS Delivered over 85 invited talks.

PATENTS U.S. #7,820,596B2 awarded Oct 26, 2010, 'Thick Film High Temperature Superconducting Device Supporting High Critical Currents and Method for Fabricating Same.'

U.S. # 7,449,163 awarded Nov 11, 2008, 'Method for Preparing Nanoparticles comprising Cerium Oxide and Zirconium' With Feng Zhang.

U.S. # 7,320,732 awarded Jan. 22, 2008, 'Method for Preparing Atomistically Straight Boundary Junctions in High Temperature Superconducting Oxides.'

U.S. # 7,141,227 awarded Nov 28, 2006, 'Apparatus and Method for Preparing Cerium Oxide Nanoparticles.'

U.S. # 5,087,608 awarded Feb. 11, 1992, 'Environmental Protection and Patterning of Superconducting Perovskites' with L.A. Farrow.

ARCHIVAL JOURNALS	
113	Effect of Nano Ceria Support and Crystallite size on the stability of Nano Cu ₂ O against Reduction, Junhua Song, Philip P. Rodenbough, Wenqian Xu, Sanjaya D. Senanayake and Siu-Wai. Chan accepted for publication by ACS as of June 3 rd 2015.
112	Structure of Calcined Cerium-Hafnium Oxide Nanoparticles with an "Intermediate" Particle Size by Joan M. Raitano, Syed Khalid, Nebojsa Marinkovic, and Siu-Wai Chan, <i>Journal of Alloys and Compounds</i> in print May 2015.
111	Size-Dependent Crystal Properties of Nanocuprite Cu ₂ O, by Junhua Song, Philip P. Rodenbough, Lihua Zhang, and Siu-Wai Chan. Submitted to <i>International Journal of Applied Ceramic Technology</i> Feb 2015.
110	Grain-Size Dependent Compressibility in Nano-Ceria (CeO ₂) with Minimum near 35nm, Philip P. Rodenbough, Junhua Song, Bora Kalkan, David Walker, Simon M. Clark, and Siu-Wai Chan, <i>Applied Physics Letters</i> , in print May, 2015.
109.	Effect of Ni Doping on the catalytic properties of nanostructured Peony-like CeO ₂ Cunxi Xian, Shaofei Wang, Chunwen SUN, Hong Li, Siu-Wai Chan and Liquan Chen, <i>Chinese Journal of Catalysis</i> , <u>34</u> , Issue 2 pp 305-312, (2012)
108.	Assessing the Genomic Effects of Naked Nanoceria in Murine Neuronal Cells, Tin-Lap Lee, Joan M. Raitano, Owen M Rennert, Siu-Wai Chan, and Wai-Yee Chan, <i>Nanomedicine</i> <u>5</u> pp.599-608 (2012), also available online Sept 2011 through <i>Nanomedicine: Nanotechnology, Biology, and Medicine</i> of Elsevier,.
107.	Structure Sensitivity of the Low-temperature Water-Gas Shift Reaction on Cu-CeO ₂ Catalysts, Rui Si, Joan Raitano, Lihua Zhang, Siu-Wai Chan, Maria Flytzani-Stephanopoulos, <i>Catalysis Today</i> , <u>180</u> , pp 68-80 (2012)
106.	Aqueous Co-Precipitation of Pd-doped Cerium Oxide Nanoparticles: Chemistry, Structure, and Particle Growth", Hongying Liang, Joan M. Raitano, Guanghui He, Austin K. Akey, Irving P. Herman, Lihua Zhang, Syed Khalid, and Siu-Wai Chan, <i>Journal of Materials Science</i> <u>47</u> , pp.299-307 (2012) online Aug. 2 (2011)
105.	Controlled Synthesis of Co ₃ O ₄ Nanopolyhedrons and Nanosheets at Low Temperature, Hongying Liang, Joan Marie Raitano, Lihua Zhang and Siu-Wai

	Chan, Chemical Communications <u>48</u> , pp.7569-7571 (2009).
104.	Charging and Chemical Reactivity of Gold Nanoparticles and Adatoms on the (111) Surface of Single Crystal Magnetite: A Scanning Tunneling Microscopy/Spectroscopy Study, Kwang Taeg Rim, Daejin Eom, Li Liu, Elena Stolyarova, Joan Marie Raitano, Siu-Wai Chan, Maria Flytzani-Stephanopoulos, George W. Flynn, Journal of Physical Chemistry C <u>113</u> , pp.10198-10205 (2009).
102	Cubic phase stabilization in nanoparticles of hafnia-zirconia oxides: Particle-size and annealing environment effects, C. H. Lu, Joan M. Raitano, Syed Khalid, Lihau Zhang, and Siu-Wai Chan, Journal of Applied Physics, vol. 103, no. 12, 2008
101.	In situ ultra-small-angle X-ray scattering study of the solution-mediated formation and growth of nanocrystalline ceria Andrew J. Allen, Vince A. Hackley, P.R. Jemian, J. Ilavsky, Joan M. Raitano, and Siu-Wai Chan,, Journal of Applied Crystallography, vol. 41, no. 5, pp. 918–929, 2008
100.	Decoration of substrate surfaces with CeO ₂ nanoparticles: An effective method for improving flux pinning in YBa ₂ Cu ₃ O _{7-d} films, T. Aytug, M. Paranthaman, A.A. Gapud, S. Kang, M. Varela, P.M. Martin, J.M. Raitano, S.-W. Chan, J.R. Thompson and D.K. Christen, IEEE Trans. on Appl. Supercond. <u>17</u> , pp. 3720-3723 (2007).
99.	Synthesis and Redox Behavior of Nanocrystalline Hausmannite, Jenna Pike, Jonathan Hanson, Lihau Zhang and Siu-Wai Chan, Chemistry of Materials, <u>19</u> pp. 5609-5616 (2007).
98	Microstructure Design by Twinning in High Temperature Superconductor YBa ₂ Cu ₃ O _{7-x} for Enhanced J _c at High Magnetic Field, V.S. Boyko and Siu-Wai Chan, Physica C, <u>466</u> pp.56-60 (2007).
97	In-situ Study of the Crystallization Transition from Amorphous to Cubic Zirconium Oxide: Rietveld and Reversed Monte Carlo Analyses, Feng Zhang, Peter.J. Chupas, Siu Lun Alan Lui, Jonathan C. Hanson, Wolfgang, A. Caliebe Peter L. Lee, and Siu-Wai Chan, Chemistry of Materials, <u>19</u> , pp.3118-3126 (2007).
96.	Cerium and Yttrium Oxide Nanoparticles Are Neuroprotective, David R.

90.

Martensitic Phase Transformation of Isolated HfO_2 , ZrO_2 and $\text{Hf}_x\text{Zr}_{1-x}\text{O}_2$ ($0 < x < 1$) Nanocrystals, Jing Tang, Feng Zhang, Peter Zoogman, Jason Fabbri, Siu-Wai Chan, Yimei Zhu, Louis E. Brus, and Michael L. Steigerwald, *Advanced Materials* 15 pp.1595-1602 (2005).

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89.	Cerium oxidation state in ceria nanoparticles using x-ray photoelectron spectroscopy and X-ray absorption near edge spectroscopy, Feng Zhang, Peng Wang, J. Koberstein, S. Khalid, and Siu-Wai Chan, <i>Surface Science</i> , <u>563</u> , pp. 74-82 (2004).
88.	Faceting and Critical Current Densities of [001] High-Angle Tilt Boundaries in YBCO Films, Siu-Wai Chan, Q. Jin, Jack W. H. Tsai, S.C. Tidrow, and Q. Jiang, <i>IEEE Transactions on Applied Superconductivity</i> , <u>13</u> , pp.2829-2831, (2003).
87.	Ceria Nanoparticles: Size, Size Distribution and Shape, Feng Zhang, Qing Jin and Siu-Wai Chan, <i>J. of Applied Physics</i> , <u>95</u> , pp. 4319-4326, (2004).
86.	Madelung-Model Prediction for the Lattice Constant Scaling with the Size of Ionic Nanocrystals of CeO ₂ and BaTiO ₃ , Vasili Perebeinos, Siu-Wai Chan and Feng Zhang, <i>Solid State Communications</i> , <u>123</u> , Issues 6-7, pp. 295-297, (2002).
85.	Visible Thermal Emission from Sub-Bandgap Laser Excited Cerium Dioxide Particles, Richard D. Robinson, Jonathan E. Spanier, Feng Zhang, Siu-Wai Chan, and Irving Herman, <i>J. Appl. Phys.</i> , <u>92</u> , pp. 1936-1941, (2002).
84.	Microstructure of Film Growth from Filtrating Mono-dispersed Particle Suspension, Feng Zhang and Siu-Wai Chan, <i>Journal of Materials Research</i> , <u>17</u> , pp.1055-1060 (2002).
83.	Twin Spacing and Its Correlation with Critical Current Density in Melt Textured YBCO with Ytria Nanoparticle Addition, Oratai Jonprateep, and Siu-Wai Chan, <i>IEEE Transactions on Applied Superconductivity</i> , <u>13</u> , pp. 3502-3505, (2003).
82.	Electrical Conductivities of (CeO ₂) _{1-x} (Y ₂ O ₃) _x Thin Films, C. Tian, Siu-Wai Chan, <i>J. of the American Ceramic Society</i> , <u>85</u> , Issue 9, pp. 2222-2229, (2002).
81.	Grain Boundary Faceting in YBa ₂ Cu ₃ O _{7-x} Bicrystal Thin Films on SrTiO ₃ substrates Q. Jin and S.-W. Chan, <i>J. of Materials Research</i> , <u>17</u> , pp.323-335 (2002).
80.	Cerium oxide nanoparticles: size-selective formation and structure analysis, Feng Zhang, Siu-Wai Chan, Jonathan E. Spanier, Ebru Apak, Qiang Jin, Richard D. Robinson, and Irving Herman, <i>Appl. Phys. Lett.</i> , <u>80</u> , pp.127-129 (2002).

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79.	Size-dependent Properties of CeO _{2-y} Nanoparticles as studied by Raman Scattering, Jonathan E. Spanier, Richard D. Robinson, Feng Zhang, Siu-Wai Chan and Irving Herman, <i>Phys. Rev. B.</i> <u>64</u> 245407, (2001).
78.	The Variation of Critical Current Density with Boundary Mis-orientation and Inclination Measured using Scanning SQUID Microscope, Jack W. Tsai, Siu-Wai Chan, John Kirtley, S.C. Tidrow, and Q. Jiang, <i>IEEE Transactions on Applied Superconductivity</i> , <u>11</u> , pp.3880-3883, (2001).
77.	Shape of a Twin as Related to The Inelastic Forces Acting on Twinning Dislocations in YBa ₂ Cu ₃ O _{7-x} , V.S. Boyko, Siu-Wai Chan, and M Chopra, <i>Phys. Rev. B</i> , <u>63</u> , pp. 2245211-2245218 (2001).
76.	Ionic Conductivities, Sintering Temperatures and Microstructures of Bulk Ceramic CeO ₂ Doped with Y ₂ O ₃ , C. Tian, and Siu-Wai Chan, <i>Solid State Ionic</i> , <u>134</u> , pp.89-102 (2000).
75.	Grain Growth Simulation of [001] Textured YBCO Films Grown on (001) Substrates with Large Lattice Misfit: Prediction of Mis-orientations of the remaining Boundaries, Jack W.H. Tsai, Shiun Ling, Julio C. Rodriguez, Zarina Mustapha, and Siu-Wai Chan, <i>Journal of Electronic Materials</i> , <u>30</u> , pp.422-431 (2001).
74.	Accuracy of Energy Dispersive X-ray Composition Analysis as Compared to Rutherford Back Scattering Spectroscopy for Y-Ba-Cu-O Films on Yttrium-containing Substrates, Z. Mustapha, A. Lam and R. Gerhardt and Siu-Wai Chan, <i>Journal of Materials Science</i> , <u>35</u> , pp.443-448 (2000).
73.	Formation and Morphology of Superconducting Hg-1223 Thick Film on Ni Substrate, R.L. Meng, S.-W. Chan, J. Cmaidalka, Y. Q. Wang, J. Otto, Y.Y. Xue, C.W.Chu, <i>Physica C</i> <u>337</u> , pp.79-82, (2000).
72.	High Resolution Transmission Electron Microscopy of Ba _{1-x} K _x BiO Superconductor-Insulator-Superconductor Grain Boundary Tunnel Junctions, Siu-Wai Chan, A. Kussmaul, E. S. Hellman, and E. H. Hartford, <i>J. of Mat. Res.</i> , <u>13</u> pp.1774-1778 (1998).
71.	Microstructural Study of CeO ₂ Thin Films, Chunyan Tian, Yang Du, and Siu-Wai Chan, <i>Journal of Vacuum Science and Technology A</i> , <u>15</u> pp.85- (1997).

ARCHIVAL JOURNALS

70.	Y ₂ BaCuO ₅ Addition and its Effects on Critical Currents in Large Grains of YBa ₂ Cu ₃ O _{7-x} , Manoj Chopra, R. L. Meng, C.W. Chu, and Siu-Wai Chan, J. Materials Research, <u>11</u> pp.1616-1626 (1996).
69.	The Mobility of Grain Boundary Dislocations During the Conservative Untwisting of [001] Twist Boundaries, Siu-Wai Chan and V. S. Boyko, Phys. Rev. B, <u>53</u> pp.16,579- (1996).
68.	Use of Carbon Films for Passivation and Environmental Protection of Superconducting YBa ₂ Cu ₃ O _{7-x} , Julie Dreyfuss Tatum, Jack Tsai, Manoj Chopra, Siu-Wai Chan, and Julia M. Phillips, S. Y. Hou, Journal of Applied Physics <u>77</u> , pp.6370-6376 (1995).
67.	Interface between Gold and Superconducting YBa ₂ Cu ₃ O _{7-x} , Siu-Wai Chan, L. Zhao, C. Chen, Qi Li, and D. B. Fenner, Journal of Materials Research, <u>10</u> , pp.2428-2432 (1995).
66.	Degenerate Epitaxy, Coincidence Epitaxy and Origin of Special Boundaries in Thin Films, Siu-Wai Chan, Journal of Physics and Chemistry of Solids, <u>55</u> , pp.1137-1145, (1994).
65.	Nature of Grain Boundaries as Related to Critical Currents in Superconducting, YBa ₂ Cu ₃ O _{7-x} Siu-Wai Chan, Journal of Physics and Chemistry of Solids, <u>55</u> , pp.1415-1432, (1994).
64.	Growth of Superconducting Y-Ba-Cu-O Films on Spinel and Garnets, Siu-Wai Chan, Manoj Chopra, Cheng-Chung Chi, Tony Frey and Chang C. Tsuei, Appl. Phys. Lett. <u>63</u> , pp.2964-2966 (1993).
63.	The Critical Current Density in High Fields in Epitaxial Thin Films of YBa ₂ Cu ₃ O _{7-x} : Flux Pinning and Pair Breaking, D.P. Hampshire, and Siu-Wai Chan, J. Appl. Phys., <u>72</u> 4220, (1992).
62.	Al/Au and Cu/Au Bilayer-Metal Contacts to YBa ₂ Cu ₃ O _{7-x} Thin Films, Q. Y. Ma, M. T. Schmidt, E. S. Yang, Siu-Wai Chan, D. Bhattachayra, J. P. Zheng, and H.S. Kwok, J. Appl. Phys. <u>71</u> 4082 (1992).
61.	Characterization of Bilayer-Metal Contacts to High T _c Super-conducting Films, Q. Y. Ma, M. T. Schmidt, L. S. Weinman, E. S. Yang, S. M. Sampere, and Siu-Wai Chan, Journal of Vacuum Science and Technology A., <u>9</u> 390 (1991).
60.	A Reactive Co-evaporation System for In-Situ, Epitaxial, YBa ₂ Cu ₃ O _{7-x} Thin Film Deposition, Siu-Wai Chan, S.M. Sampere, L.A. Farrow, J.B. Barner, C.T. Rogers, B.J. Wilkins, and E.W. Chase, Journal of Vacuum Science and Technology A., <u>9</u> 390 (1991).

ARCHIVAL JOURNALS	
59.	Application of a Near Coincidence Site Lattice Theory to the Orientations of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Grains on (001) MgO Substrates, D.M. Hwang, T.S. Ravi, R. Ramesh, Siu-Wai Chan, C.Y. Chen, L. Nazar, X.D. Wu, A. Inam, and T. Venkatesan, <i>Appl. Phys. Lett.</i> , <u>57</u> 1690 (1990).
58.	Grain Boundaries and Interfaces in Y-Ba-Cu-O Films Laser Deposited on Single Crystal MgO, T.S. Ravi, D.M. Hwang, R. Ramesh, Siu-Wai Chan, L. Nazar, C.Y. Chen, A. Inam, and T. Venkatesan, <i>Phys. Rev. B</i> , <u>42</u> 10141 (1990).
57.	Epitaxy of Y-Ba-Cu-O Thin Films Grown on Single-Crystal MgO, R. Ramesh, D. Hwang, T.S. Ravi, A. Inam, J.B. Barner, L. Nazar, Siu-Wai Chan, C.Y. Chen, B. Dutta, T. Venkatesan, and X.D. Wu, <i>Appl. Phys. Lett.</i> , <u>56</u> 2243 (1990).
56.	HREM Studies of [001] Tilt Grain Boundaries in Gold, F. Cosandey, Siu-Wai Chan and P. Stadelmann, <i>Journal de Physique, Supplement</i> , C1-109 (1990).
55.	Atomic Structure and Energy of $\Sigma = 5$ Tilt Boundaries in Au, F. Cosandey, Siu-Wai Chan, and P. Stadelmann, <i>Metallurgical Transactions A</i> , <u>21</u> 2299 (1990).
54.	Study and Preparation of High T_c Superconducting (HTSC) Thin Films for Electronic Applications, Siu-Wai Chan, R.R. Krchnavek, C.T. Rogers, S.J. Allen, M. Biazzo, E.W. Chase, T.L. Cheeks, F. DeRosa, D.M. Hwang, P.F. Miceli, S.M. Sampere, and B.J. Wilkens, <i>IEEE Transaction on Components, Hybrids, and Manufacturing Technology</i> , <u>12</u> 558 (1989).
53.	Dissipation in High T_c Thin Films, P. England, T. Venkatesan, T.L. Cheeks, H.G. Craighead, C.T. Rogers, and Siu-Wai Chan, <i>IEEE Transactions on Magnetics</i> , <u>25</u> 2237 (1989).
52.	Raman Scattering as a Contactless Room Temperature Test of the Quality of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films, L.A. Farrow, Siu-Wai Chan, L.H. Greene, and W.L. Feldmann, <i>Journal of Applied Physics</i> , <u>65</u> 2381 (1989).
51.	Direct TEM Observation of the Welding of Asperities Between Two Single Crystal Gold Films, Siu-Wai Chan, <i>IEEE Transaction on Components, Hybrids, and Manufacturing Technology</i> , <u>12</u> 39 (1989).
50.	Infrared Studies of AB-Plane Oriented $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$, D.B. Tanner, S.L. Herr, K. Kamaras, C.D. Porter, T. Timusk, D.A. Bonn, J.D. Garrett, J.E. Greedan, C.V. Stager, M. Reedyk, S. Etemad, and Siu-Wai Chan, <i>Synthetic Metals</i> , <u>29</u> , F715-F721 (1989).

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49.	Fabrication of Submicrometer Features in Y-Ba-Cu-O Superconducting Thin Films, C.T. Rogers, T.L. Cheeks, P. England, Siu-Wai Chan, H.G. Craighead, and T. Venkatesan, <i>IEEE Transactions on Magnetics</i> , <u>25</u> 1309 (1989).
48.	Transport in Reversibly Laser Modified $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$, R.R. Krchnavek, Siu-Wai Chan, C.T. Rogers, F. DeRosa, M.K. Kelly, P.F. Miceli, and S.J. Allen, <i>J. of Appl. Phys.</i> , <u>65</u> 1802 (1989).
47.	Microstructure of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films Grown on Single Crystal SrTiO_3 , Siu-Wai Chan, D.M. Hwang, and L. Nazar, <i>Journal of Applied Physics</i> , <u>65</u> 4719 (1989).
46.	Superconducting $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films on Alkaline Earth Fluorides, Siu-Wai Chan, E.W. Chase, B.J. Wilkens, and D.L. Hart, <i>Applied Physics Letters</i> , <u>54</u> 2032 (1989).
45.	Atomic Structure of $\Sigma = 5$ (310) Tilt Boundary in Gold, F. Cosandey, Siu-Wai Chan, and P. Stadelmann, <i>Scripta Metallurgica</i> , <u>22</u> 1093 (1988).
44.	Optical Characterization of Surface and Interface Oxygen Content in $\text{YBa}_2\text{Cu}_3\text{O}_x$, M.K. Kelly, Siu-Wai Chan, K. Jenkin II, D.E. Aspens, P. Barboux, and J.-M. Tarascon, <i>Applied Physics Letters</i> , <u>53</u> 2333 (1988).
43.	The Effect of Post-deposition Processing Ambient on the Preparation of Superconducting $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Co-evaporated Thin Films Using a BaF_2 Source, Siu-Wai Chan, B.G. Bagley, L.H. Greene, M. Giroud, W.L. Feldmann, K.R. Jenkin, and B.J. Wilkens, <i>Applied Physics Letter</i> , <u>53</u> 1443 (1988).
42.	Rapid Formation of Beryllium Nitride and Beryllium Oxide by Excimer Laser Irradiation of Samples Immersed in Liquids, D. Dijkkamp, X.D. Wu, Siu-Wai Chan, and T. Venkatesan, <i>J. Appl. Phys.</i> , <u>62</u> 293 (1987).
41.	Study of Energy versus Misorientation for Grain Boundaries in Gold by Crystallite Rotation Method--II. Tilt Boundaries, Siu-Wai Chan, and R.W. Balluffi, <i>Acta Metallurgica</i> , <u>34</u> 2191 (1986).
40.	Study of Energy versus Misorientation for Grain Boundaries in Gold by Crystallite Rotation Method--I. [001] Twist Boundaries, Siu-Wai Chan, and R.W. Balluffi, <i>Acta Metallurgica</i> , <u>33</u> 1113 (1985).
39.	Test for a Possible "Melting" Transition in Grain Boundary in Aluminum near the Melting Point, Siu-Wai Chan, J.S. Liu, and R.W. Balluffi, <i>Scripta Metallurgica</i> , <u>19</u> 1251 (1985).

38.	Comparison Between Computed and Observed Grain Boundary Structures and Properties in Metals, R.W. Balluffi, P.D. Bristowe, S.E. Babcock, Siu-Wai Chan, E.P. Kvam, and J.S. Liu, Journal de Physique, Supplement, C4-267 (1985).

Other Publications	
37	<p>Enhancement of Flux Pinning in $YBa_2Cu_3O_{7-x}$ Films via Nano-Scale Modifications of Substrate Surfaces, Tolga Aytug, D.K. Christen, M. Paranthaman, A.A. Gapud, H.M. Christen, S. Kang, M. Varela, K.J. Leonard, A. Goyal, P.M. Martin, J.R. Thompson, A. O. Ijaduola, R. Meng, I. Rusakova, C.W. Chu, T.H. Johansen, S.-W. Chan, a book chapter in "Flux Pinning and AC loss Studies on YBCO Coated Conductors" edited by M. Paranthaman and V. Selvamanickam and published by Nova Scientific Publishers 2007 ISBN: 1-60021-692-7.</p>
36	<p>Twins in Superconducting Melt-textured Grown Y-Ba-Cu-O as Related to Critical Current Density, Siu-Wai Chan and Linfeng Mei, Ceramic Transactions on Synthesis, Properties and Crystal Chemistry of Perovskite-Based Materials, Vol. 169, pp. 87-91 (2005)</p>
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