

<p><b>Publications- Summary</b></p>	<ul style="list-style-type: none"> <li>• <b>45 invited book chapters and publications.</b></li> <li>• <b><u>Over 350 publications in national and international journals and conference proceedings</u></b> in a wide selection of journals including Science, Nature Communications, Nature Magazine’s Scientific Reports, Philosophical Magazine, Applied Physics Letters, Energy &amp; Environmental Science, Physical Review B, Physics Review Letters, Physica C, Superconductor Science &amp; Technology, Applied Superconductivity, Journal of Materials Research, Journal of Applied Physics, Science and Journal of Minerals, Metals &amp; Materials, Cryogenics, Ultramicroscopy, Journal of American Ceramic Society, IEEE Transactions in Applied Superconductivity, Japanese Journal of Applied Physics, MRS Bulletin, Scripta Metallurgica, Materials Letters, Journal of Electronic Materials, Chemistry of Materials, Journal of Materials Science &amp; Engineering, Materials Science Forum, Journal of Superconductivity and Nanomaterials.</li> <li>• <b><u>Over 7000 citations from first author and second author publications alone.</u></b></li> <li>• <b><u>Total number of citations = over 18,900. (Google Scholar).</u></b></li> <li>• <b><u>H-index = 66 (Google Scholar).</u></b></li> <li>• <b><u>i10 = 338 (Google Scholar).</u></b></li> <li>• An independent analysis of the field of high-temperature superconductors conducted by Thompson-Reuters’s Essential Science Indicators (ESI) and ScienceWatch.com, which tracks global trends and performance in research, <b><i>Dr. Amit Goyal ranks no. 1 worldwide in the total number of citations during the last decade (1999-2009).</i></b> He also ranks no. 4 worldwide in the total number of papers published in same timeframe (this is still the highest number of papers by anyone outside of Japan). A recent interview with Amit is posted on ScienceWatch (<a href="http://sciencewatch.com/ana/st/hts/09maySTHTSGoyal/">http://sciencewatch.com/ana/st/hts/09maySTHTSGoyal/</a>). The analysis, conducted by ScienceWatch.com ranked authors, institutions, and countries worldwide by no. of citations, no. of papers, and average citations per paper.</li> </ul>
<p><b>Books- Summary</b></p>	<ul style="list-style-type: none"> <li>• <b><u>Second Generation High-Temperature Superconducting Wires</u></b>, edited by A. Goyal, under contract by Kluwer Academic Publishers. (published Oct. 2005)</li> <li>• <b><u>Epitaxial Growth of Functional Oxides</u></b>, edited by A. Goyal and W. Wong-Ng, under contract by Kluwer Academic Publishers. (published Spring, 2005)</li> <li>• <b><u>Processing of Bulk, High-Temperature Superconducting Wires</u></b>, by A. Goyal, under contract by Plenum Publishing Corporation. (published Spring 2005)</li> <li>• <b><u>Processing of High Temperature Ceramic Superconductors</u></b>, edited by R. L. Meng, A. Goyal, W. Wong, M. Matsumoto and H. Freyhardt, published by the American Ceramic Society, 2004.</li> <li>• <b><u>Processing of High Temperature Ceramic Superconductors</u></b>, edited by A. Goyal, W. Wong, M. Murakami and J. Driscoll, published by the American Ceramic Society, 2003.</li> <li>• <b><u>Processing of Long Lengths of Superconductors</u></b>, edited by U. Balachandran, E. W. Collings and A. Goyal, TMS, Warrendale, PA, 1994.</li> </ul>
<p><b>Invited Publications</b></p>	<ol style="list-style-type: none"> <li>1. <b>Invited Overview Chapter</b> in Handbook of Superconducting Materials, titled “<i>HTS conductor processing techniques</i>”, 2017.</li> <li>2. <b>Invited Overview Chapter</b> in second edition of handbook titled “<i>Nanotechnologies to enable high-performance superconductors for energy applications</i>”, published by Wiley-VCH, 2013, edited by J. Garcia, Spain.</li> <li>3. <b>Invited Book Chapter</b> for book titled “<i>Interfaces in Electronic Materials</i>” published by Francis Dodds of Woodhead Publishing, 2011.</li> <li>4. <b>Invited Overview Chapter</b> in handbook titled “<i>Nanotechnology for the Energy Challenge</i>”, published by Wiley-VCH, 2009, edited by J. Garcia, Spain.</li> <li>5. <b>Invited Overview Chapter</b> in book titled “<i>Thin Film Metal-Oxides: Fundamentals</i></li> </ol>

*and Applications in Electronics and Energy*” published by Springer, 2009, edited by S. Ramanathan, Harvard University.

6. **Invited Overview Chapter** in book titled “CSD of Functional Oxide Thin Films”, To be published by Wiley-VCH, 2009, edited by T. Schneller, R. Waser and D. Payne.
7. **Invited Paper**, titled “Multifunctional, phase-separated, BaTiO<sub>3</sub>+CoFe<sub>2</sub>O<sub>4</sub> cap buffer layers for improved flux-pinning in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> based coated conductors,” to be published in special issue of Superconductor Science & Technology, 2009.
8. **Invited Paper**, titled “Enhanced and Uniform in-Field Performance in Long (Gd,Y)-Ba-Cu-O Tapes with Zirconium Doping Fabricated by Metal Organic Chemical Vapor Deposition,” to be published in special issue of Superconductor Science & Technology, 2009.
9. **Invited Paper**, titled “Effects on J<sub>c</sub> of Pining Center Morphology for Multiple-in-Line-Damage in Coated Conductor and Bulk, Melt-Textured HTS,” to be published in special issue of Physica C, 2009.
10. **Invited Paper**, titled “Magnetic field orientation dependence of flux pinning in (Gd,Y)Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> coated conductor with tilted lattice and nanostructures,” to be published in special issue of Physica C, 2009.
11. **Invited paper**, titled “Enhanced flux pinning in MOCVD-YBCO films through Zr-additions: Systematic feasibility studies,” to be published in special issue of Physica C, 2009.
12. **Invited Overview Chapter** in Encyclopedia of Materials: Science and Technology (EMSAT) on the RABiTS technology. 2007 Elsevier Ltd. All rights reserved. Editors: K. H. Jürgen Buschow, Robert W. Cahn, Merton C. Flemings, Bernard Ilshner (print), Edward J. Kramer, Subhash Mahajan, and Patrick Veyssière (updates), ISBN: 978-0-08-043152-9, pgs. 1-5.
13. **Invited Overview Chapter** in Book titled “Flux Pinning and AC loss Studies on YBCO Coated Conductors” edited by M. Parans Paranthaman and Venkat Selvamanickam, published by Nova Science Publishers.
14. **Invited paper**, published in the proceedings of the 1<sup>st</sup> International Congress on Ceramics, held in Toronto, Canada, June, 2006.
15. **Invited Overview Chapter** in Book titled “Second generation HTS Conductors” edited by A. Goyal, Published by Kluwer Academic Publishers, NY, October, 2005.
16. **Invited Overview Paper**, published in the Proc. Of the ISS’2004 in Physica C, 2005.
17. **Invited Overview Paper**, Published in the MRS Bulletin, August, 2004.
18. **Invited Overview Chapter** in Book “High Temperature Superconductivity I: Materials,” edited by A.V. Narlikar, pp. 377-398, 2004, published by Springer, NY.
19. **Invited Overview Chapter** in Book “Recent Research Developments in Applied Chemistry,” A new series in Applied Chemistry by Transworld Research Network, containing review articles, to be published 2004.
20. **Invited Overview Chapter** in Book on "Electron Backscatter Diffraction in Materials Science," pp. 319-337, 2000, Published by Kluwer Academic/ Plenum Publishers, New York, edited by A. J. Schwartz, M. Kumar and B. L. Adams.
21. **Invited Overview Paper**, published in the Proc. of ISS'2000, Tokyo, published by ISTE, Japan.
22. **Invited Overview Paper**, published in the Proc. of the IWCC'2000, Fukuoka, Japan, Oct. 2000.
23. **Invited Overview Paper**, J. of Minerals, Metals and Materials Special Issue on 21<sup>st</sup> Century Technologies, July 1999.
24. **Invited Overview Paper** for a special issue of the Journal MICRON titled “Advanced Microscopy Studies of High temperature Superconductors”, Vol. 30, No.

5, pgs. 463-478, Oct. 1999.

25. **Invited Overview Paper** titled “High Critical Current Density  $\text{YBa}_2\text{Cu}_3\text{O}_7$  Tapes Using the RABiTS Approach”, J. of Superconductivity, 11, 481, 1998.
26. **Invited Overview Paper** for a Handbook of Superconducting Materials, Institute of Physics, 1999.
27. **Invited Overview Paper** on RABiTS in a special issue of Applied Superconductivity, titled, Long Length Conductor Development for Large-scale Applications”, paper titled “Epitaxial Superconductors on RABiTS: A Route Towards High Critical Current Density HTS Wire”, vol. 4, pg. 403-428, 1997.
28. **Invited Overview Paper** for a special issue of the Journal of Materials Research for the 10th Anniversary of HTS Materials, paper titled “Conductors with Controlled Grain Boundaries: An Approach to the Next Generation, High Temperature Superconducting Wire”, vol. 12, pg. 2924-2940, 1997.
29. **Invited Plenary Lecture Overview Paper** for Proceedings of the 10th Frontiers in Electron Microscopy Conference, Chicago, Illinois. Published in Ultramicroscopy, 1997.
30. **Invited Overview Chapter** on Texture Development in Book Titled “Preferred Orientation Development and Property Anisotropy from High Temperature Forming Operations Metals and Intermetallics”, 1997.
31. **Invited Paper**, Proceedings of the 1998 US-Japan Workshop held in Okinawa, Japan, July 13-16, 1998.
32. **Invited Paper**, Proceedings of the 1998 TMS Meeting, To be published in the J. of Superconductivity, 1998.
33. **Invited Paper**, Proceedings of the 8th US-Japan Workshop, Dec. 7-10, Tallahassee, FL, 1997.
34. **Invited Chapter** in Book titled “Synthesis and Properties of Advanced Materials”, with D. M. Kroeger, D. F. Lee and E. D. Specht, Kluwer Academic Publishers, pgs. 117-148, 1997.
35. **Invited Paper**, EMSA '97 on Grain Boundary Studies of HTS materials, Proceedings of the EMSA meeting, 1997.
36. **Invited Overview Paper** on Grain Boundaries in HTS Materials, Journal of Metals, Minerals and Materials, 1996.
37. **Invited Research Paper**, Symposium on High Temperature Superconductors, 1996 Spring TMS Meeting, and Anaheim, CA.
38. **Invited Research Paper**, Symposium on High Temperature Superconductors, 1995 Spring TMS Meeting (Feb 28th - Mar 3rd), Las Vegas, NV; Published in the J. of Electronic Materials, titled “Mesotexture and Microtexture in Bi-2223 Powder-in-tube Conductors”.
39. **Invited Research Commentary**, J. of Minerals, Metals and Materials Special Issue on Superconductors, titled “Progress Towards Bulk applications of High- $T_c$  Superconductors”, JOM, Aug. 1995.
40. **Invited Research Paper**, Symposium on High Temperature Superconductors, 1994 Spring TMS Meeting (Feb 28th - Mar 3rd), San Francisco, CA; published in the J. of Electronic Materials, titled “Dependence of Critical Current Density on Microstructure and Processing of High- $T_c$  Superconductors”.
41. **Invited Research Commentary**, J. of Minerals, Metals and Materials Special Issue on Superconductors, titled “Advances in Processing of High- $T_c$  Superconductors for Bulk Applications”, JOM, Dec. 1994.
42. **Invited Review Article** with D. M. Kroeger, “Models for Long Range Current Flow in Bulk Oxide Superconductors”, J. of Minerals, Metals and Materials, Dec. 1994, pg. 14.
43. **Invited Research Paper** with D. M. Kroeger, E. D. Specht, J. E. Tkaczyk, J. Sutliff,

	<p>J. A. Deluca, G. N. Riley, Jr., L. Masur, "Local Texture and Grain Boundary Misorientations in High-<math>J_c</math> Oxide Superconductors", Published in J. of Superconductivity, Dec. 1994.</p> <p>44. <b>Invited Research Paper</b> with D. M. Kroeger, E. D. Specht, J. E. Tkaczyk, J. Sutliff, J. A. Deluca, G. N. Riley, Jr., L. Masur, "Local Texture and Grain Boundary Misorientations in High-<math>J_c</math> Oxide Superconductors", Published in J. of Superconductivity, Dec. 1994.</p> <p>45. <b>Invited Chapter</b> in Book titled "Interface and Grain Boundary Chemical Structures in YBaCuO materials", with Z. L. Wang, R. Kontra, D. M. Kroeger and R. K. Williams, 1994.</p> <p>46. <b>Invited Review Article</b> - with Z. L. Wang, R. Kontra and D. M. Kroeger, "Microstructures and Flux-pinning in Melt-processed 123", Materials Science Forum, 1993.</p> <p>47. <b>Invited Review Article</b> with D. M. Kroeger, "Critical Currents and Microstructure in Oxide Superconductors", J. of Minerals, Metals and Materials, Oct. 1992.</p>
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<p style="text-align: center;"><b>Publications</b></p>	<ol style="list-style-type: none"> <li>1. "Dynamic Behavior of Reversible Oxygen Migration in Irradiated-Annealed High Temperature Superconducting Wires," Yi Zhang, M. W. Rupich, Vyacheslav Solovyov, Qiang Li, Amit Goyal, Accepted for publication in <b>Nature Magazine's Scientific Reports</b>, 2020.</li> <li>2. "Single-Crystal-like, epitaxial GaAs thin film on flexible metal substrate for optoelectronic applications," Gokul Radhakrishnan, Kyunghoon Kim, Ravi Droopad and Amit Goyal, Submitted to <b>Nature Magazine's Scientific Reports</b>, 2020.</li> <li>3. "Single-Crystal-like, epitaxial Germanium Films on Flexible, Single-Crystal-Like Substrates," Kyunghoon Kim, Gokul Radhakrishnan, Ravi Droopad and Amit Goyal, Submitted to <b>Advanced Functional Materials</b>, 2020.</li> <li>4. "Epitaxial Growth of Superconductors on Single-Crystal, Structural, Faceted Fibers (SSIFFS): A New Approach Towards Low-AC Loss Wire", A. Goyal, S. H. Wee and Y. Zuev, In preparation, to be submitted to <b>Science</b>, 2020.</li> <li>5. "Structural, band and electrical characterization of <math>\beta</math>-(Al<sub>0.19</sub>Ga<sub>0.81</sub>)<sub>2</sub>O<sub>3</sub> films grown by Molecular Beam Epitaxy on Sn doped <math>\beta</math>-Ga<sub>2</sub>O<sub>3</sub> substrate," A. Vaidya I, J. Sarkar, Y. Zhang, L. Lubecki, J. Wallace, J. Poplawsky, K. Sasaki, A. Kuramata, T. Masui, A. Goyal, J. Gardella, B. Mazumder and U Singiseti, <b>Journal of Applied Physics</b>, 126 (2019) 095702.</li> <li>6. "Probing the Irradiation Defects in Enhanced 2G High Temperature Superconducting Wire", Yi Zhang, M. W. Rupich, Vyacheslav Solovyov, Qiang Li, Amit Goyal, <b>Microscopy &amp; Microanalysis</b>, 25 (S2) (2019) 1614.</li> <li>7. "Dynamic Oxygen Motion in Irradiated-Annealed High Temperature Superconducting Wire", Yi Zhang, M. W. Rupich, Vyacheslav Solovyov, Qiang Li, Amit Goyal, <b>Microscopy &amp; Microanalysis</b>, 25 (S2) (2019) 1616.</li> <li>8. "Probing Single Mn atom in doped MoS<sub>2</sub> Monolayer", Yi Zhang, Chuan Zhao, Hao Zeng, Amit Goyal, To be published in the <b>Proceedings of Microscopy &amp; Microanalysis</b>, Portland, Oregon, Aug. 4<sup>th</sup>-8<sup>th</sup>, 2019.</li> <li>9. "Optimal, Nanodfect Configurations via Strain-Mediated Assembly for Optimized Vortex-Pinning in Superconducting Wires from 4.2K-77K", A Goyal and S. H. Wee, <b>Journal of Physics</b>, 871 (2018) 012039.</li> <li>10. "Heteroepitaxy of large grain Ge film on cube-textured Ni(001) foils through CaF<sub>2</sub> buffer layer," Chen, Liang, Xie, Weiyu, Wang, Gwo-Ching, Bhat, Ishwara, Zhang, Shengbai, Goyal, Amit, Lu, Toh-Ming, <b>Thin Solid Films</b>, Vol: 603, Pages: 428-434, 2015.</li> <li>11. "Heteroepitaxial Cu<sub>2</sub>O on inexpensive, scalable, single-crystal-like metallic substrates: A potential route towards non-toxic, earth-abundant solar cells," S. H.</li> </ol>
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- Wee, P. Huang, J. K. Lee and A. Goyal, **Nature Magazine's Scientific Reports**, Scientific Reports 5, Article number: 16272, doi:10.1038/srep16272 (2015).
12. "Heteroepitaxy of Ge on Cube-Textured Ni(001) Foils Through CaF<sub>2</sub> Buffer Layer;" Chen, L., Lu, Z.-H., Lu, T.-M., Bhat, I., Zhang, S.B., Goyal, A., Zhang, L.H., Kisslinger, K. and Wang, G.-C., **MRS Advances**, pp. 1–6. doi: 10.1557/adv.2016.517, 2015.
  13. "Epitaxial growth of Ba<sub>2</sub>YNbO<sub>6</sub> films on biaxially-textured Ni-W substrates as a multifunctional single buffer layer for high J<sub>c</sub> epitaxial YBCO film," S. H. Wee; C. Cantoni and A Goyal, **MRS Communications**, Volume 5, Issue 3, pp. 533-538, 2015.
  14. "Robust critical current density in applied magnetic fields in 5μm thick, SmBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> based superconducting wires," A O Ijaduola, F List, H-S Kim, S-S Oh and A Goyal, **Physica C: Superconductivity and its Applications**, Volume 517, Pages 1–4, 2015.
  15. "Ultra-High Performance, High-Temperature Superconducting Wires via Cost-effective, Scalable, Co-evaporation Process", Ho-Sup Kim, Sang-Soo Oh, Hong-Soo Ha, Dojun Youm, Seung-Hyun Moon, Jungho Kim, Shi Xue Dou, Yoon-Uk Heo, Sung-Hoon Wee and A. Goyal, **Nature Magazine's Scientific Reports**, 4, Article number:4744doi:10.1038/srep04744, 2014.
  16. "Engineering NanoColumnar Defect Configurations for Optimized Vortex Pinning in High Temperature Superconducting Nanocomposite Film-based Wires," S. H. Wee, Y. Zuez, C. Cantoni and A. Goyal, **Nature Magazine's Scientific Reports**, 3, Article number: 2310 (2013).
  17. "Robust superconducting FeSe<sub>0.5</sub>Te<sub>0.5</sub> coated conductors at 30 tesla," Weidong Si, Su Jung Han, Xiaoya Shi, Steven N. Ehrlich, J. Jaroszynski, Amit Goyal, and Qiang Li, **Nature Communications**, 4, Article number: 1347, 2013, doi:10.1038/ncomms2337.
  18. "Orientational domains in metalorganic chemical vapor deposited CdTe(111) film on cube-textured Ni," G. C. Wang, L.H. Zhang, Kim Kisslinger, C. Gaire, A. Goyal, I. Bhat and T.-M. Lu, **Thin Solid Films**, 531 (2013) 217–221.
  19. "Frontiers in Thin Film Epitaxy and Nanostructured Materials," J. Narayan, J. Schwartz, A. Goyal, H. Y. Wang, S. H. Jin and X. Z. Liao, **J. of Mater. Res.**, 28 (2013) 1625-1625.
  20. "Strain-Modulated Self-Assembly in Nanostructured, Complex Oxide Films via Spontaneous Phase Separation and Ordering Mechanism," S. H. Wee, Y. Gao, Y. L. Zuev, K. L. More, J. Meng and A. Goyal, **Advanced Functional Materials**, doi: 10.1002/adfm.201202101, 2012.
  21. "Heteroepitaxial growth of Si films on flexible metallic substrates for fabrication of low cost, high performance Si solar cells," S. H. Wee, C. Cantoni, T. Fanning, J. Bornstein, D. F. Bogorin, M. Paranthaman and A. Goyal, **Energy & Environmental Science** (EES), 5 (2012) 6052-6056.
  22. C. Gaire, J. Palazzo, A. Goyal, G. C. Wang and T. M. Lu, "Low temperature epitaxial growth of Ge on cube-textured Ni," **J. of Cryst. Growth**, 343 (2012) 33-37.
  23. "Phase Stability of Cubic Pyrochlore Rare Earth Tantalate Pinning Additives in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Superconductor," S. H. Wee, C. Cantoni, Y. L. Zuev, E. D. Specht, and A. Goyal, **J. of Am. Cer. Soc.**, 95 (2012) 1174-1177.
  24. C. Gaire, S. Rao, M. Riley, L. Chen, A. Goyal, S. Lee, I. Bhat, T. M. Lu, and G. C. Wang, "Epitaxial growth of CdTe thin film on biaxially textured Ni substrate," **Thin Solid Films**, 520 (2012) 1862-1865.
  25. "Critical currents, magnetic relaxation and pinning in NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> films with BaZrO<sub>3</sub>-generated columnar defects," Ijaduola, AO, Wee, SH, Goyal, A, Martin, PM, Li, J, Thompson, JR, Christen, DK, **Supercond. Sci & Tech.**, 25, Article No. 045013, 2012.

26. "Nanotechnologies to enable high-performance superconductors for energy applications", C. Cantoni and A. Goyal to be published in second edition of book titled "**Nanotechnology for the Energy Challenge**" by Wiley-VCH, 2013, edited by J. Garcia, Spain.
27. "Structural engineering of epitaxial, self-assembled ferromagnetic cobalt/yttria-stabilized zirconia nanocomposites for ultrahigh-density storage media," J. Shin, A. Goyal, C. Cantoni, J. W. Sinclair, and J. R. Thompson, **NanoTechnology**, 23, Article No. 155602, 2011.
28. "Triangular Graphene Grain Growth on Cube-textured Cu Substrates," J. Liu, J. Wu, C. M. Edwards, C. L. Berrie, D. Moore, Z. Chen, V. A. Maroni, M. Paranthaman, and A. Goyal, **Advanced Functional Materials**, 21 (2011.) 3868-3874
29. "Strain-driven Oxygen Deficiency in Self-assembled, Nanostructured, Composite Oxide Films," C. Cantoni, Y. F. Gao, S. H. Wee, E. D. Specht, J. Gazquez, J. Y. Meng, S. J. Pennycook and A. Goyal, **ACS Nano**, 2011, 5 (6), pp 4783–4789.
30. "Polarization manipulation via orientation control in heteroepitaxial BiFeO<sub>3</sub> thin films on biaxially textured, flexible metallic tapes," J. Shin, A. Goyal, S. Jesse, and L. Heatherly, **Appl. Phys. Exp.**, Vol.: 4, Issue: 2, Article Number: 021501, DOI: 10.1143/APEX.4.021501, 2011.
31. "Formation of Stacking Faults and Their Correlation with Flux Pinning and Critical Current Density in Sm-doped YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Films," S. H. Wee, E. D. Specht, C. Cantoni, Y. L. Zuev, V. Maroni, W. Wong-Ng, G. Liu, T. J. Haugan, and A. Goyal, **Phys. Rev. B**, 83, 224520 (2011).
32. "Grain boundary networks in high-performance, heteroepitaxial, YBCO films on polycrystalline, cube-textured metals," A. Goyal, D. P. Field, R. Held and J. Mannhart, **Phil. Mag.**, 91 (2011) 246-255.
33. "Formation of Self-Assembled, Double-Perovskite, Ba<sub>2</sub>YNbO<sub>6</sub> Nanocolumns and Their Contribution to Flux-Pinning and J<sub>c</sub> in Nb-Doped YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> Films," S. H. Wee, A. Goyal, Y. L. Zuev, C. Cantoni, V. Selvamanickam, and E. D. Specht, **Appl. Phys. Exp.**, 3 (2010) 023101.
34. "Enhanced Flux Pinning and Critical Current Density via Incorporation of Self-assembled Rare-earth Barium Tantalate Nanocolumns within YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> films," S. H. Wee, A. Goyal, Amit, E. D. Specht, C. Cantoni, Y. L. Zuev, V. Selvamanickam, S. Cook, **Physical Review B**, vol. 81, Issue 14, id. 140503, 2010.
35. "Multifunctional, phase separated, BaTiO<sub>3</sub>+CoFe<sub>2</sub>O<sub>4</sub> cap buffer layers for improved flux-pinning in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> based coated conductors," S. H. Wee, J. Shin, C. Cantoni, Y. L. Zuev, S. Cook, and A. Goyal, **Supercond. Sci. Technol.** 23 (2010) 014007.
36. "Enhanced flux pinning in MOCVD-YBCO films through Zr additions: systematic feasibility studies," T. Aytug, M. Paranthaman, E. D. Specht, Y. Zhang, K. Kim, Y. L. Zuev, C. Cantoni, A. Goyal, D. K. Christen, V. A. Maroni, Y. Chen and V. Selvamanickam, **Supercond. Sci. Technol.**, 23 014005, 2010.
37. "Modified Lanthanum Zirconium Oxide buffer layers for low-cost, high performance YBCO coated conductors," M. Paranthaman, S. Sathyamurthy, Xiaoping Li, E.D. Specht, S.H. Wee, C. Cantoni, A. Goyal, M.W. Rupich, **Physica C**, 470 (2010) 352–356.
38. "An evaluation of phase separated, self-assembled LaMnO<sub>3</sub>-MgO nanocomposite films directly on IBAD-MgO as buffer layers for flux pinning enhancements in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-delta</sub> coated conductors," O. Polat, T. Aytug, M. P. Paranthaman, K. J. Leonard, A. R. Lupini, S. J. Pennycook, H. M. Meyer, K. Kim, X. F. Qiu, S. Cook, J. R. Thompson, D. K. Christen, A. Goyal, X. M. Xiong, V. Selvamanickam, **J. of Mater. Res.**, 25 (2010) 437-443.
39. "Nanotechnology for Superconductors from the Energy Perspective ", C. Cantoni and A. Goyal published in book titled "**Nanotechnology for the Energy Challenge**"

by Wiley-VCH, 2010, edited by J. Garcia, Spain, ISBN: 978-3-527-32401-9.

40. "Enhanced and uniform in-field performance in long (Gd, Y)-Ba-Cu-O tapes with zirconium doping fabricated by metal-organic chemical vapor deposition," V. Selvamanickam, A. Guevara, Y. Zhang, I. Kesgin, Y. Xie, G. Carota, Y. Chen, J. Dackow, Y. Zhang, Y. Zuev, C. Cantoni, A. Goyal, J. Coulter, L. Civale, **Supercond. Sci. & Tech.**, 23 (2010), Article Number 014014.
41. "Enhanced flux pinning in MOCVD-YBCO films through Zr-additions: Systematic feasibility studies," Aytug, T., Paranthaman, M., Specht, E. D., Kim, K., Zhang, Y., Cantoni, C., Zuev, Yuri L., Goyal, A., Christen, D. K., and Maroni, V. A., **Supercond. Sci. & Tech.**, 23 (2010) Article Number: 014005.
42. "High-Tc Superconducting Thin- and Thick-Film-Based Coated Conductors for Energy Applications," C. Cantoni and A. Goyal published in book titled "**Thin Film Metal-Oxides: Fundamentals and Applications in Electronics and Energy**" by Springer, 2010, edited by S. Ramanathan, Harvard University.
43. "Phase-Separated, Epitaxial, Nanostructured LaMnO<sub>3</sub>+MgO Composite Cap Layer Films for Propagation of Pinning Defects in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Coated Conductors," S. H. Wee, J. Shin, C. Cantoni, H. M. Meyer, S. Cook, Y. L. Zuev, E. D. Specht, X. M. Xiong, M. P. Paranthaman, V. Selvamanickam, A. Goyal, **Appl. Phys. Exp.**, 2 (2009) 063008.
44. "A three-dimensional, biaxially textured oxide nanofence composed of MgO single crystal nanobelt segments," S. H. Wee, A. Goyal, K. More and E. Specht, **Nanotechnology**, 20 (2009) 215608.
45. "Single-crystal-like, c-axis oriented BaTiO<sub>3</sub> thin films with high-performance on flexible metal templates for ferroelectric applications," J. Shin, A. Goyal, **Appl. Phys. Lett.**, 94 (2009), 252903.
46. "Growth of epitaxial  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> films on rigid single-crystal ceramic substrates and flexible, single-crystal-like metallic substrates by pulsed laser deposition," J. Shin, A. Goyal, and S. H. Wee, **Thin Solid Films**, 517, Issue 19, Pages 5710-5714, Aug., 2009.
47. "Growth of thick BaZrO<sub>3</sub>-doped YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub>  films with high critical currents in high applied magnetic field", S. H. Wee, A. Goyal, and Y. L. Zuev, **IEEE Trans. Supercon.**, 19, 3266, 2009.
48. "Effects on J<sub>c</sub> of Pining Center Morphology for Multiple-in-Line-Damage in Coated Conductor and Bulk, Melt-Textured HTS," Weinstein, R., Parks, D., Sawh, R.-P., Mayes, B., Gandini, A., Goyal, A., Chen, Y., and Selvamanickam, V., **Physica C**, 469 (2009) 2068-2076.
49. "Magnetic field orientation dependence of flux pinning in (Gd,Y)Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> coated conductor with tilted lattice and nanostructures," Zhang, Y., Specht, E. D., Cantoni, C., Christen, D. K., Zuev, Y. L., Goyal, A., Sinclair, J., Thompson, J. R., Aytug, T., Paranthaman, M. P., Chen, Y., and Selvamanickam, V., **Physica C**, 469 (2009) 2044-2051.
50. "Low-angle grain boundaries in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub>  with high critical current densities," R. Held, C. W. Schneider, J. Mannhart, L. F. Allard, K. L. More, and A. Goyal, **Phys. Rev. B**, 79, Article No. 014515, Jan. 2009.
51. "Influence of oxygen deficiency on the out-of-plane tilt of epitaxial Y<sub>2</sub>O<sub>3</sub> films on Ni-5%W tapes," C. Cantoni, E. D. Specht, A. Goyal, X. Li and M. Rupich, **J. of Mater. Res.**, 24 (2009) 520-525.
52. "Enhanced flux pinning by BaZrO<sub>3</sub> and (Gd,Y)<sub>2</sub>O<sub>3</sub> nano-structures in metal organic chemical vapor deposited GdYBCO high temperature superconductor tapes," Y. Chen, V. Selvamanickam, Y. Zhang, Y. L. Zuev, C. Cantoni, E. D. Specht, M. P. Paranthaman, T. Aytug, A. Goyal and D. Lee, **Appl. Phys. Lett.**, vol. 94, Article Number: 062513, 2009.
53. "Deposition studies and coordinated characterization of MOCVD YBCO films on

IBAD-MgO templates,” Aytug T, Paranthaman M, Heatherly L, Zuev Y, Zhang Y, Kim K, Goyal A, Maroni VA, Chen Y, Selvamanickam V, **Super. Sci & Tech.**, 22, Article No. -15008, 2009.

54. “High- $T_c$  Superconducting Thin and Thick-Film Based Coated Conductors for Energy Applications,” C. Cantoni and A. Goyal, Invited Chapter for book titled “**Thin Film Metal-Oxides: Fundamentals and Applications in Electronics and Energy**” published by Springer, 2009, edited by S. Ramanathan, Harvard University.
55. “Fabrication of epitaxial  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> and spinel NiAl<sub>2</sub>O<sub>4</sub> films on SrTiO<sub>3</sub> by pulsed laser ablation,” J. Shin, A. Goyal, K. More and S.H. Wee, **J. of Crys. Growth**, 311, Issue 1, Pages 210-213, Dec. 2008.
56. “Tuning flux-pinning in epitaxial NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub>  films via engineered, hybrid nanoscale defect structures,” S. H. Wee, A. Goyal, Y. L. Zuev, and C. Cantoni, **Appl. Phys. Exp.**, Vol. 1, Issue: 11, Article Number: 111702, NOV 2008.
57. “High performance superconducting wires in high applied magnetic fields via nanoscale defect engineering”, S. H. Wee, A. Goyal, Y. L. Zuev, and C. Cantoni, **Supercond. Sci. Technol.**, 21, 092001, 2008.
58. “Near-isotropic performance of intrinsically anisotropic high-temperature superconducting tapes due to self-assembled nanostructures,” Y. L. Zuev, D. K. Christen, S. H. Wee, A. Goyal, and S. W. Cook, **Appl. Phys. Lett.**, 93, Article no. 172512, 2008.
59. “Improved textured La<sub>2</sub>Zr<sub>2</sub>O<sub>7</sub> buffer on La<sub>3</sub>TaO<sub>7</sub> seed for all-MOD Buffer/YBCO coated conductors,” Paranthaman MP, Bhuiyan MS, Sathyamurthy S, Heatherly L, Cantoni C, Goyal A, **Physica C**, 468 (2008) 1587-1590.
60. “Extraction of misorientation components from the total misorientation at grain boundaries using electron diffraction in a Y<sub>0.9</sub>Sm<sub>0.1</sub>Ba<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> film,” J. Li and A. Goyal, **J. of Am. Cer. Soc.**, 91 (2008) 3045-3051.
61. “Spatial ordering and anisotropy in surface stress domains and nanostructural evolution,” Gao YF, Meng JY, Goyal A, Stocks GM, **JOM**, 60 (2008) 54-58.
62. “Epitaxial (La, Sr)TiO<sub>3</sub> on textured Ni-W as a conductive buffer architecture for high temperature superconducting coated conductor,” Kim K, Norton DP, Christen DK, Cantoni C, Aytug T, Goyal A, **Physica C**, 468 (2008) 961-967.
63. “Superconducting wire with record performance in high applied magnetic fields via nanoscale defect engineering,” S. Wee, A. Goyal, Y. Zuev and C. Cantoni, **Supercond. Sci. & Tech.**, vol. 21, Article Number: 092001, SEP 2008.
64. “Enhanced Flux-Pinning in Dy-Doped, MOD YBCO Films on RABiTS,” Goyal A., Li J., Martin P. M., Gapud A., Specht E. D., Paranthaman M., Li X., Zhang W., Kodenkandath T., Rupich M. W., **IEEE Transactions on Applied Superconductivity**, Volume 17, Issue 2, Part 3, June 2007 Page(s):3340 – 3342.
65. “Fabrication of High- $J_c$  NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> and BaZrO<sub>3</sub>-doped NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Films on RABiTS,” Wee S. H., Goyal A., Martin P. M., Li J., Paranthaman M., and Heatherly L., **IEEE Transactions on Applied Superconductivity**, Volume 17, Issue 2, Part 3, June 2007 Page(s):3672 – 3674.
66. “Slot Die Coating and Conversion of LZO on Rolling Assisted Biaxially Textured Ni-W Substrates With and Without a Very Thin Seed Layer in Low Vacuum,” Heatherly L., Hsu H., Wee S. H., Li J., Sathyamurthy S., Paranthaman M., and Goyal A., **IEEE Transactions on Applied Superconductivity**, Volume 17, Issue 2, Part 3, June 2007 Page(s):3417 – 3419.
67. “MOD Buffer/YBCO Approach to Fabricate Low-Cost Second Generation HTS Wires,” Paranthaman M. P., Sathyamurthy S., Bhuiyan M. S., Martin P. M., Aytug T., Kim K., Fayek M., Leonard K. J., Li J., Goyal A., Kodenkandath T., Li X., Zhang W., Rupich M. W., **IEEE Transactions on Applied Superconductivity**, Volume 17, Issue 2, Part 3, June 2007 Page(s):3332 – 3335.



68. "Control of Flux Pinning in MOD YBCO Coated Conductor," Zhang W., Huang Y., Li X., Kodenkandath T., Rupich M. W., Schoop U., Verebelyi D. T., Thieme C. L. H., Siegal E., Holesinger T. G., Maiorov B., Civale L., Miller D. J., Maroni V. A., Li J., Martin P. M., Specht E. D., Goyal A., Paranthaman M. P., **IEEE Transactions on Applied Superconductivity**, Volume 17, Issue 2, Part 3, June 2007 Page(s):3347 – 3350.
69. "Flux-pinning characteristics as a function of density of columnar defects comprised of self-assembled nanodots and nanorods in epitaxial YBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> films for coated conductor applications," S. Kang, A. Goyal, J. Li et al., **Physica C-Superconductivity and its Applications**, Vol. 457, Issue: 1-2, Pages: 41-46, JUN 15 2007.
70. "Local epitaxy of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> on polycrystalline Ni measured by x-ray microdiffraction," E.D. Specht, A. Goyal A and W. Liu, **J. of Mater. Res.**, Vol. 22, Issue: 3, Pages: 664-674, Mar. 2007.
71. "Strong enhancement of flux pinning in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> multilayers with columnar defects comprised of self-assembled BaZrO<sub>3</sub> nanodots," S. Kang, K. J. Leonard, P. M. Martin, J. Li and A. Goyal, **Supercond. Sci & Tech.**, Vol. 20, Issue: 1, Pages: 11-15, Jan. 2007.
72. "Electrical properties of epoxy resin based nano-composites," Enis Tuncer, Isidor Sauers, D Randy James, Alvin R Ellis, M Parans Paranthaman, Tolga Aytug, Srivatsan Sathyamurthy, Karren L More, Jing Li and Amit Goyal, **Nanotechnology**, vol. 18, 025703-025710, Jan. 17, 2007.
73. "Formation of high-quality, epitaxial La<sub>2</sub>Zr<sub>2</sub>O<sub>7</sub> layers on biaxially textured substrates by slot-die coating of chemical solution precursors," Wee SH, Goyal A, Hsu H, **J. of Am. Cer. Soc.**, 90 (2007) 3529-3535.
74. "Low-Cost, High-Performance, Epitaxial Ceramic Films on Artificial Substrates for Energy and Electronic Applications," A. Goyal, in **Global Roadmap for Ceramic and Glass Technology**, edited by S. Freiman, published by Wiley, ISBN: 978-0-470-10491-0, pages 891-902, June 2007.
75. "Superconducting YBCO Conductors: The RABiTS Approach," A. Goyal, chapter in encyclopedia titled "**Encyclopedia of Materials: Science and Technology**" edited by K. H. Jürgen Buschow, Robert W. Cahn, Merton C. Flemings, Bernard Ilshner (print), Edward J. Kramer, Subhash Mahajan, and Patrick Veyssi re, published by Elsevier, 2009, ISBN: 978-0-08-043152-9.
76. "Massive Enhancements in pinning via columnar defects comprised of self-aligned BZO nanodots," A. Goyal, S. Kang, and J. Li, **Invited book chapter**, published in book titled "**Flux Pinning and AC loss Studies on YBCO Coated Conductors**" edited by M. Parans Paranthaman and Venkat Selvamanickam, published by Nova Science Publishers, 2007.
77. "Special section: Superconducting wires and tapes – Foreword," Paranthaman MP, Selvamanickam V, Matsumoto K, Gianni L, Zhang W, Goyal A, Wong-Ng W, **J. Elect. Mater.**, 36 (2007) 1229.
78. "Epitaxial growth of High-J<sub>c</sub> NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> films on RABiTS by pulsed laser deposition," Wee SH, Goyal A, Li J, **J. Elect. Mater.**, 36 (2007) 1230-1233.
79. "Strong enhancement of flux pinning in thick NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> films grown on ion-beam assisted deposition-MgO templates via three-dimensional self-assembled stacks of BaZrO<sub>3</sub> nanodots," Wee SH, Goyal A, Li J, Zuev YL, Cook S, **J. of Appl. Phys.**, 102 (2007) Article No. 063906.
80. "Enhancement of dielectric strength in nanocomposites," Tuncer E, Sauers I, James DR, Ellis AR, Paranthaman MP, Goyal A, More KL, **Nanotechnology**, 18 (2007) Article Number: 325704.
81. "The incorporation of nanoscale columnar defects comprised of self-assembled BaZrO<sub>3</sub> nanodots to improve the flux pinning and critical current density of NdBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> films grown on RABiTS, Wee SH, Goyal A, Li J, Zuev YL, Cook S,

- Heatherly L, **Supercond. Sci. & Tech.**, 20 (2007) 789-793.
82. "Analysis of flux pinning in  $\text{YBa}_2\text{Cu}_3\text{O}_x$  films by nanoparticle-modified substrate surfaces," T. Aytug, M. Paranthaman, K. J. Leonard, S. Kang S, P. M. Martin PM, L. Heatherly, A. Goyal, A. O. Ijaduola, J. R. Thompson, D. K. Christen, R. Meng, I. Rusakova and C. W. Chu, **Phys. Rev. B**, Vol. 74 Issue: 18 Article Number: 184505, Nov.2006.
  83. "Stacking faults in  $\text{YBa}_2\text{Cu}_3\text{O}_x$ : Measurement using x-ray diffraction and effects on critical current," E. D. Specht, A. Goyal, J. Li et al., **Appl. Phys. Lett.**, Vol. 89, Issue 16, Article Number: 162510, Oct. 16 2006.
  84. "Strong flux-pinning in epitaxial  $\text{NdBa}_2\text{Cu}_3\text{O}_{7-\delta}$  films with columnar defects comprised of self-assembled nanodots of  $\text{BaZrO}_3$ ," S. H. Wee, A. Goyal, P. M. Martin et al., **Supercond. Sci & Tech.**, Vol. 19, Issue 10, Pages: L42-L45. Oct. 2006.
  85. "All MOD buffer/YBCO approach to coated conductors," M. Paranthaman, S. Sathyamurthy, L. Heatherly, P. M. Martin, A. Goyal, T. Kodenkandath X. Li, C. L. H. Thieme and M. W. Rupich, **Physica C-Superconductivity and its Applications**, Vol. 445, Pages: 529-532 Oct. 1 2006.
  86. "Method to separate in-plane and out-of-plane misorientation from the total misorientation at grain boundaries in polycrystalline YBCO films," J. Li and A. Goyal, published in the **Proceedings of the Microscopy Society of America**, July 30-Aug 6, 2006, Chicago, IL.
  87. "High Performance High- $T_c$  Superconducting Wires," S. Kang, A. Goyal, J. Li, A. Gapud, P. M. Martin, J. R. Thompson, D. K. Christen, F. A. List, M. Paranthaman and D. F. Lee, **Science**, vol. 311, pgs. 1911-1914, March 31<sup>st</sup> issue, 2006.
  88. "Extended  $\text{BaZrO}_3$  Nanodot Columns in Thick  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  Film," J. Li, S. Kang and A. Goyal, published in the **Proceedings of the Microscopy Society of America**, July 30-Aug 6, 2006, Chicago, IL.
  89. "Processing Dependence of Texture, and Critical Properties of  $\text{YB}_2\text{Cu}_3\text{O}_{7-\delta}$  Films on RABiTS Substrates by a Non-fluorine MOD Method," Y. Xu, A. Goyal, K. J. Leonard, E. D. Specht, D. Shi and M. Paranthaman, **J. Am. Cer. Soc.**, 89 (2006) 914-920.
  90. "Stacking faults in YBCO: measurement by x-ray diffraction and effects on critical current," E. D. Specht, A. Goyal, J. Li, P. M. Martin, X. Li and M. Rupich, **Appl. Phys. Lett.**, 89 (16): Art. No. 162510 OCT 16 2006.
  91. "High in-field critical current densities in epitaxial  $\text{NdBa}_2\text{Cu}_3\text{O}_{7-\delta}$  thin films on RABiTS by pulsed laser deposition," S. H. Wee, A. Goyal, P. M. Martin and L. Heatherly, **Supercond. Sci. Technol.**, 19, 865-868, 2006.
  92. "Strong Flux-Pinning in Epitaxial  $\text{Nd-123}$  films with Columnar Defects Comprised of Self-assembled Nanodots of BZO," S. H. Wee, A. Goyal, P. M. Martin, J. Li, M. Paranthaman and L. Heatherly, **Supercond. Sci. Technol.**, 19, L42-L45, 2006.
  93. "Solution Processed Lanthanum Zirconium Oxide as a Primary Barrier Layer for High- $I_c$  Coated Conductors," S. Sathyamurthy, M. Paranthaman, L. Heatherly, P. M. Martin, E. D. Specht and A. Goyal, **J. of Materials Research**, 21 (2006) 910-914.
  94. "Deposition of Rare Earth Tantalate Buffers on Textured Ni-W Substrates for YBCO Coated Conductor Using CSD," M. S. Bhuiyan, M. Paranthaman, A. Goyal, L. Heatherly and D. Beach, **J. of Materials Research**, 21 (2006) 767-773.
  95. "Enhancements of Flux-pinning in  $\text{YBa}_2\text{Cu}_2\text{O}_3$  Films via Nanoscale Modification of Substrate Surfaces," T. 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 and S.W. Chan, Invited book chapter, to be published in book titled "**Flux Pinning and AC loss Studies on YBCO Coated Conductors**" edited by M. Parans Paranthaman and Venkat Selvamanickam, published by Nova Science Publishers, 2007.
  96. "Mechanical Properties of Pure Ni and Ni-Alloy Substrate Materials for Y-Ba-Cu-O

- Coated Conductors,” C. C. Clickner, J. W. Ekin, N. Cheggour, C. L. H. Thieme, Y. Qiao, Y. Y. Xie and A. Goyal, **Cryogenics**, 46 (2006) 432-438.
97. “A Perspective on Conducting Oxide Buffers for Cu based YBCO Coated Conductors, K. Kim, M. Paranthaman, D. P. Norton, C. Cantoni and A. Goyal, **Superconductor Sci. & Tech.**, 19 (2006) R23-R29.
98. “Enantiospecific Electrodeposition of Chiral CuO Films on Cu(001) Rolling Assisted Biaxially Textured Substrates,” Jay Switzer and A. Goyal, **Chemistry of Materials**, 2006.
99. “Electrodeposition of CuO Epitaxial Films on Cu (100) Rolling-Assisted Biaxially Textured Substrates,” R. Liu, E. W. Bohannon, E. A. Kulp, G. S. Hemanth, J. A. Switzer and A. Goyal, **Physica C**, 2006.
100. “Strong Flux-pinning in YBCO Films by Columnar Defects Comprised of Self-assembled Nanodots and Nanorods,” A. Goyal, S. Kang, K. Leonard, P. Martin, A. Gapud, M. Varela, M. Paranthaman, I. Ijadoula, J. Thompson, D. Christen, S. Pennycook and F. A. List, **Supercond. Sci. Tech.**, 18 (2005) 1533-1538.
101. “Assessment of chemical solution synthesis and properties of Gd<sub>2</sub>Zr<sub>2</sub>O<sub>7</sub> thin films as buffer layers for second generation high-temperature superconductor wires,” T. Aytug, M. Paranthaman, K.J. Leonard, H.Y. Zhai, M.S. Bhuiyan, E.A. Payzant, A. Goyal, S. Sathyamurthy, D.B. Beach, P.M. Martin, D.K. Christen, X. Li, T. Kodenkandath, U. Schoop, M.W. Rupich, H. E. Smith, T. Haugan and P. N. Barnes, **J. of Mater. Res.**, 20 (2005) 2988-2996.
102. “Long-range Current Flow and Percolation in RABiTS-type conductors and the relative importance of out-of-plane and in-plane Misorientations in determining J<sub>c</sub>,” A. Goyal, N. Rutter, C. Cantoni and D. F. Lee, **Physica C**, 426 (2005) 1083-1090.
103. “Pulsed Electron Deposition of Fluorine-based Precursors for YBCO Coated Conductors,” H. M. Christen, D. F. Lee, F. A. List, S. W. Cook, K. J. Leonard, L. Heatherly, P. Martin, M. Paranthaman, A. Goyal and C. M. Rouleau, **Superconductor Sci. & Tech.**, Volume 18, Number 9, September 2005, pp. 1168-1175(8).
104. “Growth of YBCO Films on MgO-based Rolling-assisted-biaxially-textured substrates,” M. Paranthaman, T. Aytug, H. Y. Zhai, L. Heatherly, A. Goyal and D. K. Christen, **Supercond. Sci & Tech.**, 18 (2005) 223-228.
105. “R&D of RABiTS-based Coated Conductors: Conversion of Ex-Situ YBCO Superconductor Using a Novel Pulsed Electron-Beam Precursor,” D. F. Lee, H. M. Christen, F. A. List, L. Heatherly, K. J. Leonard, C. M. Rouleau, S. W. Cook, P. M. Martin, M. Paranthaman and A. Goyal, **Physica C**, 426 (2005) 878-886.
106. “High critical current YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> thick films on rolling-assisted biaxially textured substrates,” S. Kang, A. Goyal, N. Rutter, K. Leonard and D. Kroeger, **Journal of the American Ceramic Society**, Volume 88, Issue 10, Page 2677-2680, Oct 2005.
107. “Deposition of (Y<sub>2</sub>BaCuO<sub>5</sub>/YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub>)<sub>x</sub>N multilayer films on Ni-based textured substrates,” T. Haugan, P. N. Barnes, T. A. Campbell, A. Goyal, A. Gapud, S. Kang and L. Heatherly, **Physica C**, 425 (1-2): 21-26 SEP 1 2005.
108. “Second generation HTS wire based on RABiTS substrates and MOD YBCO,” Schoop U, Rupich MW, Thieme C, Verebelyi DT, Zhang W, Li X, Kodenkandath T, Nguyen N, Siegal E, Civale L, Holesinger T, Maiorov B, Goyal A, Paranthaman M, **IEEE Transactions on Applied Superconductivity**, 15 (2): 2611-2616 Part 3, JUN 2005
109. “Liquid phase enhanced hybrid MOD approach for high performance YBCO films development,” Xu Y, Goyal A, Leonard K, Heatherly L, Martin P, **IEEE Transactions on Applied Superconductivity**, 15 (2): 2617-2619 Part 3, JUN 2005
110. “Improved YBCO coated conductors using alternate buffer architectures,” Paranthaman MP, Sathyamurthy S, Bhuiyan MS, Goyal A, Kodenkandath T, Li X, Zhang W, Thieme CLH, Schoop U, Verebelyi DT, Rupich MW, **IEEE**

**Transactions on Applied Superconductivity**, 15 (2): 2632-2634 Part 3, JUN 2005.

111. Low-pressure conversion studies for YBCO precursors derived by PVD and MOD methods,” List FA, Clem PG, Heatherly L, Dawley JT, Leonard KJ, Lee DF, Goyal A, **IEEE Transactions on Applied Superconductivity**, 15 (2): 2656-2658 Part 3, JUN 2005.
112. “Solution deposition approach to high J(c) coated conductor fabrication,” Sathyamurthy S, Paranthaman M, Bhuiyan MS, Payzant EA, Lee DF, Goyal A, Li X, Kodenkandath T, Schoop U, Rupich M, **IEEE Transactions on Applied Superconductivity**, 15 (2): 2974-2976 Part 3, JUN 2005.
113. Iridium: An oxygen diffusion barrier and a conductive seed layer for RABiTS-based coated conductors,” Aytug T, Paranthaman M, Zhai HY, Leonard KJ, Gapud AA, Thompson JR, Martin PM, Goyal A, Christen DK, **IEEE Transactions on Applied Superconductivity**, 15 (2): 2977-2980 Part 3, JUN 2005.
114. “Investigation of TiN seed layers for RABiTS architectures with a single-crystal-like out-of-plane texture,” Cantoni C, Goyal A, Schoop U, Li X, Rupich MW, Thieme C, Gapud AA, Kodenkandath T, Aytug T, Paranthaman M, Kim K, Budai JD, Christen DK, **IEEE Transactions on Applied Superconductivity**, 15 (2): 2981-2984 Part 3, JUN 2005.
115. (La, Sr)TiO<sub>3</sub> as a conductive buffer for high-temperature superconducting coated conductors,” Kim K, Norton DP, Cantoni C, Aytug T, Gapud AA, Paranthaman MP, Goyal A, Christen DK, **IEEE Transactions on Applied Superconductivity**, 15 (2): 2997-3000 Part 3, JUN 2005.
116. “High performance YBCO films by the hybrid of non-fluorine yttrium and copper salts with Ba-TFA,” Xu Y, Goyal A, Leonard K, Martin P, **Physica C**, 421 (1-4): 67-72 MAY 1 2005.
117. “Epitaxial growth of solution-based rare-earth niobate, RE<sub>3</sub>NbO<sub>7</sub>, films on biaxially textured Ni-W substrates,” Paranthaman M, Bhuiyan MS, Sathyamurthy S, Zhai HY, Goyal A, Salama K, **J. of Materials Research**, 20 (1): 6-9 JAN 2005.
118. “Oxidation of carbon on nickel-based metallic substrates: Implications for high-temperature superconductor coated conductors, List FA, Heatherly L, Lee DF, Leonard KJ, Goyal A **JOURNAL OF MATERIALS RESEARCH** 20 (3): 765-773 MAR 2005.
119. “Growth of rare-earth niobate-based pyrochlores on textured Ni-W substrates with ionic radii dependency,” Bhuiyan MS, Paranthaman M, Sathyamurthy S, Goyal A, Salama K, **J. of Materials Research**, 20 (4): 904-909 APR 2005.
120. “Growth of YBCO films on MgO-based rolling-assisted biaxially textured substrates templates,” Paranthaman MP, Aytug T, Zhai HY, Heatherly L, Goyal A, Christen DK, **Supercond. Sci & Tech.** 18 (3): 223-228 MAR 2005.
121. “Epitaxial Growth of Eu<sub>3</sub>NbO<sub>7</sub> Buffer Layers on Biaxially Textured Ni-W Substrates,” M. S. Bhuiyan, M. Paranthaman, D. Beach, L. Heatherly, A. Goyal, E. A. Payzant and K. Salama,” in book titled “**High-Temperature Superconductor Materials, Devices, and Applications**,” edited by M. Paranthaman, P. N. Barnes, B. Holzapfel, Y. Yamada, K. Matsumoto and J. K. F. Yao, published by the American Ceramic Society, 2005, pgs. 35-42.
122. “Perovskite Type Buffers for YBCO Coated Conductors,” M. Parans Paranthaman, T. Aytug, H.Y. Zhai, A.A. Gapud, P.M. Martin, K.J. Leonard, A. Goyal, and D.K. Christen, in “**Synthesis, Properties, and Crystal Chemistry of Perovskite-Based Materials**: Proceedings of the 106th Annual Meeting of The American Ceramic Society,” Indianapolis, Indiana, USA 2004, Ceramic Transactions, Volume 169, Winnie Wong-Ng (Editor), Amit Goyal (Editor), Ruyan Guo (Editor), Amar S. Bhalla (Editor), 2005, pgs. 49-59.
123. “Ex-Situ Conversion of Physical Vapor Deposited YBCO Precursors on RABiTS,” D. F. Lee, F. A. List, R. Feenstra, H. Christen, L. Heatherly, K. Leonard, A. Goyal

and M. Paranthaman, published in the proceedings of the Workshop on **Coated Conductor & Applications** (CCA2004) held in Kanagawa, Japan, Nov. 18-20, 2004.

124. "Recent Progress in the Fabrication of RABiTS," A. Goyal, F. A. List, N. Rutter, D. Field, L. Heatherly, T. Aytug, C. Cantoni, A. Ijadoula, J. R. Thompson, D. F. Lee, S. Cook, M. Paranthaman, K. J. Leonard, S. Kang and D. Christen, published in the proceedings of the Workshop on **Coated Conductor & Applications** (CCA2004) held in Kanagawa, Japan, Nov. 18-20, 2004.
125. "High-J<sub>c</sub> YBCO Superconductors on Rolling-Assisted-Biaxially-Textured-Substrates (RABiTS)," A. Goyal, M. Paranthaman and U. Schoop, invited paper, **MRS Bulletin**, Vol. 29, No.8, pp. 533-542, August 2004.
126. "Epitaxial Superconductors on Rolling-Assisted-Biaxially-Textured-Substrates (RABiTS)," A. Goyal, invited chapter in book titled "**Second generation HTS Conductors**" edited by A. Goyal, published in October, 2004 by Kluwer Academic Publishers, NY, 2004, pgs 3-22.
127. "Modeling Current Flow in Granular Superconductors," N. Rutter and A. Goyal, invited book chapter in book titled "**Studies of High Temperature Superconductors**", pp. 377-398, Springer, New York, 2004.
128. "High Performance YBCO Films by Hybrid of Non-fluorine Yttrium and Copper Salts with Ba-TFA," Y. Xu, A. Goyal and K. J. Leonard, **Physica C** 421 (1-4): 67-72, 2005.
129. "An Approach for Electrical Self-Stabilization of High Temperature Superconductors," T. Aytug, M. Paranthaman, H. Zhai, A. Gapud, K. Leonard, A. Goyal, J. Thompson, and D. Christen, **Appl. Phys. Lett.**, 85 (2004) 2887-2889.
130. "Identification of a Self-limiting Reaction Layer in Ni-3at%W Rolling Assisted Biaxially Textured Substrates," K. J. Leonard, A. Goyal, S. Kang, K. A. Yarborough and D. M. Kroeger, **Supercond. Sci. & Tech.**, 17 (2004) 1295-1302.
131. "Magnetism and Ferromagnetic Loss in Ni-W Textured Substrates for Coated Conductors," A. O. Ijadoula, J. Thompson, A. Goyal, C. Thieme and K. Marken, **Physica C**, 403 (2004) 163-171.
132. "Chemical Solution Deposition of Lanthanum Zirconate Barrier Layers Applied to Low-cost Coated-conductor Fabrication," S. Sathyamurthy, M. Paranthaman, H. Y. Zhai, S. Kang, T. Aytug, C. Cantoni, K. Leonard, E. A. Payzant, H. M. Christen, A. Goyal, X. Li, U. Schoop, T. Kodenkandath and M. Rupich, **J. of Mater. Res.**, 19 (2004) 2117-2123.
133. "Effects of conversion parameters on the transport properties of YBCO films in the BaF<sub>2</sub> ex situ process," Yoo J, Leonard KJ, Lee DF, Hsu HS, Heatherly L, List FA, Rutter NA, Goyal A, Paranthaman M, Kroeger DM, **J. of Mater. Res.**, 19 (2004) 1281-1289. (April issue)
134. "Progress in the Deposition of MgB<sub>2</sub> Films," X. X. Xi, A. V. Pogrebnyakov, X. H. Zeng, J. M. Redwing, S. Y. Xu, Qi Li, Zi-Kui Liu, J. Lettieri, V. Vaithyanathan, D. G. Schlom, H. M. Christen, H. Y. Zhai, and A. Goyal, **Supercond. Sci. & Technology**, 17 (2004) S196-201.
135. "Characterization of Suitable Buffer Layers on Cu and Cu-alloy Metal Substrates for the Development of Coated Conductors," Cantoni C, Christen DK, Specht ED, Varela M, Thompson JR, Goyal A, Thieme C, Xu Y, Pennycook SJ, **Supercond. Sci. & Technology**, 17 (2004) S341-344.
136. "Ni overlayers on biaxially textured Ni-alloy and Cu substrates by DC sputtering," Rutter NA, Goyal A, Vallet CE, List FA, Lee DF, Heatherly L, Kroeger DM, **Supercond. Sci. & Technology**, 17 (2004) 527-531.
137. "Detection of Interfacial Strain and Phase Separation in MBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Thin Films Using Raman Spectroscopy and X-ray Diffraction Space Mapping," Kartik Venkataraman, A. Jeremy Kropf, Carlo U. Segre, Quanxi Jia, A. Goyal, S.

Chattopadhyay, Victor A. Maroni, **Physica C**, 402 (2004) 1-16.

138. "Oxidation of Carbon on Nickel-Based Metallic Substrates: Implications of Coated Conductors," F. A. List, L. Heatherly, D. F. Lee, K. Leonard and A. Goyal, **J. of Mater. Res.**, 17 (2004) 765-773.
139. "Preparation of YBCO Films on CeO<sub>2</sub>-Buffered (001) YSZ Substrates by a Non-Fluorine MOD Method," Yongli Xu, A. Goyal, N.A. Rutter, Donglu Shi and S. Sathyamurthy, **J. of Am. Cer. Soc.**, 87 (2004) 1669-1676.
140. "Metal-Oxide Interfaces in Second Generation HTS Wires: Mechanism of Epitaxial Growth of Oxide Films Mediated by a Sulfur Superstructure," C. Cantoni, D. K. Christen, A. Goyal, L. Heatherly, F. A. List, E. D. Specht, M. A. Varela and S. J. Pennycook, published in book titled "**Functional Growth of Epitaxial Oxides**" edited by A. Goyal and W. Wong-Ng, to be published by Kluwer Academic Publishers, NY, 2004.
141. "Modeling Current Percolation in Granular Superconductors," N. Rutter and A. Goyal, published in the proceedings of the symposium titled "**Functional Growth of Epitaxial Oxides**" edited by A. Goyal and W. Wong-Ng published by Kluwer Academic Publishers, NY, 2004.
142. "Deposition of (211-<sub>0.5nm</sub>/123-<sub>15nm</sub>)xN Multilayer Coated Conductors on Ni-based Textured Substrates," T. Haugan, P. Barnes, R. Nekkanti, J. M. Evans, L. Brunke, I. Maartense, J. P. Murphy, A. Goyal, A. Gapud, L. Heatherly, published in the proceedings of the symposium titled "**Functional Growth of Epitaxial Oxides**" edited by A. Goyal and W. Wong-Ng published by Kluwer Academic Publishers, NY, 2004.
143. "Reel-to-reel ex situ conversion of high critical current density electron beam co-evaporated BaF<sub>2</sub> precursor on RABiTS," D. F. Lee, K. J. Leonard, L. Heatherly, F. A. List, S. W. Cook, J. Yoo, M. Paranthaman, P. M. Martin, A. Goyal and D. M. Kroeger, **Supercond. Sci. Technol.**, 17 (3): 386-394 MAR 2004.
144. "Pulsed Electron Deposition for Coated Conductors," Hong-Ying Zhai, Hans M. Christen, Ron Feenstra, Frederick A. List III, Amit Goyal, Keith J. Leonard, Yongli Xu, David K. Christen, Kartik Venkataraman, and Victor A. Maroni, **Mat. Res. Soc. Symp. Proc.** Vol. EXS-3, EE 1.8.1-1.8.3, published by Materials Research Society, 2004.
145. "Growth of Epitaxial Y<sub>2</sub>O<sub>3</sub> Film on Biaxially Textured NiW Substrates," M.S. Bhuiyan, M. Paranthaman, S. Sathyamurthy, T. Aytug, S. Kang, D. F. Lee, A. Goyal, E.A. Payzant and K. Salama, **Mat. Res. Soc. Symp. Proc.** Vol. EXS-3, EE 4.5.1-4.5.3, published by Materials Research Society, 2004.
146. "Critical Current Modeling for Coated Conductor Applications," N. Rutter and A. Goyal, **Mat. Res. Soc. Symp. Proc.** Vol. EXS-3, EE 5.24.1-5.24.3, published by Materials Research Society, 2004.
147. "Reel-to-reel Continuous Chemical Solution Deposition of Epitaxial Gd<sub>2</sub>O<sub>3</sub> Buffer Layers on Biaxially Textured Metal Tapes for the Fabrication of YBCO Coated Conductors," T. Aytug, M. Paranthaman, B. Kang, D. Beach, S. Sathyamurthy, E. Specht, R. Feenstra, A. Goyal, D. Kroeger, K. Leonard, P. Martin and D. Christen, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs 65-54.
148. "Control of the sulfur c(2x2) Superstructure on {100}<100> Textured Metal Templates for RABiTS Applications," C. Cantoni, D. Christen, L. Heatherly, F. List, A. Goyal, G. Ownby and D. Zehner, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs. 85-100.
149. "An Economical Route for Production of High-Quality YSZ Buffer Layers using the ECONO process," M. A. Zurbuchen, S. Sambasivan, S. Barnett, B. Kang, A. Goyal,

- P. Barnes and C. E. Oberly, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs. 133-146.
150. "YBCO Films Through a Fluorine Free TMAP MOD Approach," Y. Xu, D. Shi, A. Goyal, M. Paranthaman, N. A. Rutter, P. Martin and D. Kroeger, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs. 175-182.
151. "Effect of Transverse Compressive Stress on Transport Critical Current Density of YBCO Coated Ni and NiW RABiTS Tapes," N. Cheggour, J. Ekin, C. Clickner, R. Feenstra, A. Goyal, M. Paranthaman and N. Rutter, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs. 183-196.
152. "Demonstration of High Current Density Films on all Solution Buffers," M. Paranthaman, S. Sathyamurthy, H. Zhai, H. Christen, S. Kang and A. Goyal, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs. 255-260.
153. "Solution Buffer Layers for YBCO Coated Conductors," S. Sathyamurthy, M. Paranthaman, H. Zhai, S. Kang, C. Cantoni, S. Cook, L. Heatherly and A. Goyal, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs. 261-266.
154. "Development of Conductive La<sub>0.7</sub>Sr<sub>0.3</sub>MnO<sub>3</sub> Buffer Layers for Cu-Based RABiTS," T. Aytug, M. Parathaman, A. Goyal, A. Gapud, N. Rutter, H. Zhai and D. Christen, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs. 281-284.
155. "Analytical Transmission Electron Microscopy of Thick YBCO Films on RABiTS," K. J. Leonard, S. Kang, B. Kang, A. Goyal, and D. Kroeger, chapter in book titled "**Progress in High-Temperature Superconductors**", published by the American Ceramic Society, Westerville, OH, April, 2004, pgs. 285-294.
156. "Reversible Axial-Strain Effect and Extended Strain Limits in Y-Ba-Cu-O Coatings on Deformation-Textured Substrates," N. Cheggour, J. W. Ekin, C. C. Clickner, D. T. Verebelyi, C. L. H. Thieme, R. Feenstra and A. Goyal, **Appl. Phys. Lett.**, 83 (2003) 4223-4225. (Nov. Issue)
157. "Uniform performance of continuously processed YBCO coated conductors," D. T. Verebelyi, U. Schoop, C. Thieme, X. Li, W. Zhang, T. Kodenkandath, A. P. Malozemoff, N. Nguyen, E. Siegal, D. Buczek, J. Lynch, J. Scudiere, M. Rupich, A. Goyal, E. D. Specht, P. Martin and M. Paranthaman, **Supercond. Sci. Technol.**, 16 (2003) L19-L22.
158. "Deposition and Characterization of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub> /LaMnO<sub>3</sub>/MgO/TiN Hetero-Structures on Cu Metal Substrates for Development of Coated Conductors," Cantoni, C., Christen, D.K., Varela, M., Thompson, J.R., Pennycook, S.J., Specht, E.D., Goyal, A. **J. Mater. Res.**, 18 (2003) 2387-2400. (Oct. issue)
159. "MOD approach for the growth of epitaxial CeO<sub>2</sub> buffer layers on biaxially textured Ni-W substrates for YBCO coated conductors," Bhuiyan MS, Paranthaman M, Sathyamurthy S, Aytug T, Kang S, Lee DF, Goyal A, Payzant EA, Salama K, **Supercond. Sci. & Technology**, 16 (2003) 1305-1309. (Nov. Issue)
160. "New approach to depositing yttria-stabilized zirconia buffer layers for coated conductors," Sambasivan S, Kim I, Barnett S, Zurbuchen MA, Ji J, Kang BW, Goyal A, Barnes PN, Oberly CE, **J. of Mat. Res.**, 18 (4): 919-928, 2003.
161. "Electrical and Magnetic Properties of Conductive Cu-based RABiTS," T. Aytug, M. Paranthaman, J. R. Thompson, A. Goyal, N. Rutter, H. Y. Zhai, A. A. Gapud, A. O. Ijadoula and D. K. Christen, **Appl. Phys. Lett.**, 83 (2003) 3963-3965. (Nov.

Issue)

162. "Fabrication of high-critical current density  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  films using a fluorine-free sol gel approach," Xu Y, Goyal A, Rutter NA, Shi D, Paranthaman M, Sathyamurthy S, Martin PM, Kroeger DM, **J. of Mat. Res.**, 18 (3): 677-681, 2003.
163. "High critical current density  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  coatings on  $\text{LaMnO}_3$ -buffered biaxially textured Cu tapes for coated conductor applications," Aytug T, Goyal A, Rutter N, Paranthaman M, Thompson JR, Zhai HY, Christen DK, **J. of Mat. Res.**, 18 (4): 872-877, 2003.
164. "Reel-to-reel continuous chemical solution deposition of epitaxial  $\text{Gd}_2\text{O}_3$  buffer layers on biaxially textured metal tapes for the fabrication of  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  coated conductors," Aytug T, Paranthaman MP, Kang BW, Beach DB, Sathyamurthy S, Specht ED, Lee DF, Feenstra R, Goyal A, Kroeger DM, Leonard KJ, Martin PM, Christen DK, **J. of the Am. Cer. Soc.**, 86 (2): 257-265, 2003.
165. "Effect of Transverse Compressive Stress on Transport Critical Current Density of YBCO Coatings on Biaxially Textured Ni and Ni-W-Fe Substrates," N. Cheggour, J. Ekin, C. Clickner, R. Feenstra, A. Goyal, M. Paranthaman and N. Rutter, in book "Processing of High Temperature Superconductors," **Ceramic Transactions**, Vol. 140, edited by A. Goyal, W. Wong-Ng, M. Murakami and J. Driscoll, 2003, publisher: American Ceramic Society, pgs. 157-170.
166. "YBCO Films Through a Fluorine Free TMAP MOD Approach," Y. Xu, D. Shi, A. Goyal, M. Paranthaman, N. Rutter, P. Martin and D. Kroeger, in book "Processing of High Temperature Superconductors," **Ceramic Transactions**, Vol. 140, edited by A. Goyal, W. Wong-Ng, M. Murakami and J. Driscoll, 2003, publisher: American Ceramic Society, pgs. 129-136.
167. "An Economical Route for Production of High-Quality YSZ Buffer Layers Using the ECONO™ Process," M. Zurbuchen, S. Sambasivan, B. Kang, A. Goyal, S. Barnett, P. A. Barnes, and C. Oberly, in book "Processing of High Temperature Superconductors," **Ceramic Transactions** Vol. 140, edited by A. Goyal, W. Wong-Ng, M. Murakami and J. Driscoll, 2003, publisher: American Ceramic Society, pgs. 77-90.
168. "Control of the Sulfur c (2 x2) Superstructure on  $\{100\}<100>$  Textured Metals for RABiTS Applications," C. Cantoni, D. Christen, L. Heatherly, F. List, G. Ownby and D. Zehner, in book "Processing of High Temperature Superconductors," **Ceramic Transactions** Vol. 140, edited by A. Goyal, W. Wong-Ng, M. Murakami and J. Driscoll, 2003, publisher: American Ceramic Society, pgs. 17-32.
169. "Development of conductive buffer layers for Cu-based RABiTS coated conductors," T. Aytug, M. Paranthaman, J. R. Thompson, A. Goyal, N. Rutter, H. Y. Zhai, A. A. Gapud, A. O. Ijaluola and D. K. Christen, **Appl. Phys. Lett.**, 83 (19): 3963-3965 NOV 10 2003.
170. "Microstructural Characterization of Thick  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  Films on Improved Rolling-Assisted-Biaxially-Textured Substrates," K. J. Leonard, S. Kang, A. Goyal, K. Yarborough and D. M. Kroeger, **J. of Mater. Res.**, 18(5), 1109-1122, 2003.
171. "Microstructure Characterization of the Thickness Dependence of Critical Current Density of  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  on Rolling-Assisted Biaxially Textured Substrates," K. J. Leonard, B. W. Kang, A. Goyal, D. M. Kroeger, S. Kang, J. W. Jones, M. Paranthaman, D. F. Lee, P. M. Martin and S. Sathyamurthy, **J. of Mater. Res.**, 18 (2003) 1109-1122.
172. "Development of Conductive  $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$  Buffer Layers for Cu-Based RABiTS," T. Aytug, M. Paranthaman, A. Goyal, A. Gapud, N. Rutter, H. Y. Zhai and D. K. Christen, in book "Processing of High Temperature Superconductors," **Ceramic Transactions** Vol. 140, edited by A. Goyal, W. Wong-Ng, M. Murakami and J. Driscoll, 2003, publisher: American Ceramic Society, pgs. 119-128.
173. "Solution Processing of Lanthanum Zirconate Films as Single Buffer layers for High  $I_c$  YBCO Coated Conductors," S. Sathyamurthy, M. Paranthaman, H. Zhai, H.



Christen, C. Cantoni, A. Goyal and P. Martin, **IEEE Trans. On Appl. Superconductivity**, 13(2): 2658-2660, Jun 2003.

174. "Growth of Oxide Seed Layers on Ni and Other technological Interesting Metal Substrates: Issues Related to Formation and Control of Sulfur Superstructures for Texture Optimization," C. Cantoni, D. Christen, A. Goyal, L. Heatherly, F. List, G. Ownby, D. Zehner, H. Christen and C. Rouleau, **IEEE Trans. On Appl. Superconductivity**, 13(2): 2646-2650, Jun 2003.
175. "LaMnO<sub>3</sub>: A Single Oxide Buffer Layer for High-J<sub>c</sub> YBCO Coated Conductors," T. Aytug, M. Paranthaman, S. Kang, H. Zhai, H. Christen, C. Vallet, S. Sathyamurthy, A. Goyal and D. K. Christen, **IEEE Trans. On Appl. Superconductivity**, 13(2): 3530-3533, Jun 2003.
176. "Transverse Compressive Stress Effect in YBCO Coatings on Biaxially Textured Ni and Ni-5at%W Substrates," N. Cheggour, J. Ekin, C. Clickner, D. Verebelyi, C. Thieme, A. Malozemoff, R. Feenstra, A. Goyal and M. Paranthaman, **IEEE Trans. On Appl. Superconductivity**, 13(2): 2661-2664, Jun 2003.
177. "YBCO Coated Conductors by a MOD Process," Rupich, M.W.; Schoop, U.; Verebelyi, D.T.; Thieme, C.; Zhang, W.; Li, X.; Kodenkandath, T.; Nguyen, N.; Siegal, E.; Buczek, D.; Lynch, J.; Jowett, M.; Thompson, E.; Wang, J.-S.; Scudiere, J.; Malozemoff, A.P.; Li, Q.; Annavarapu, S.; Cui, S.; Fritzscheier, L.; Aldrich, B.; Craven, C.; Niu, F.; Schwall, R.; Goyal, A.; Paranthaman, M.; **IEEE Trans. On Appl. Superconductivity**, 13(2): 2458-2461, Jun 2003.
178. "Strengthened, biaxially textured Ni substrate with small alloying additions for coated conductor applications," A. Goyal, R. Feenstra, M. Paranthaman, J. R. Thompson, B. Y. Kang, C. Cantoni, D. F. Lee, F. A. List, P. M. Martin, E. Lara-Curzio, C. Stevens, D. M. Kroeger, M. Kowaleski, E. D. Specht, T. Aytug, S. Sathyamurthy, R. K. Williams and R. E. Ericson, **Physica C**, 382 (2002) 251-262.
179. "Comparative study of thickness dependence of critical current density of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> on (100) SrTiO<sub>3</sub> and on rolling-assisted biaxially textured substrates," Kang BW, Goyal A, Lee DR, Mathis JE, Specht ED, Martin PM, Kroeger DM, Paranthaman M, Sathyamurthy S, **J. of Mat. Res.**, 17 (7): 1750-1757, 2002.
180. "Ni-Cr textured substrates with reduced ferromagnetism for coated conductor applications," Thompson JR, Goyal A, Christen DK, Kroeger DM, **Physica C**, 370 (3): 169-176, 2002.
181. "Uniform texture in meter-long YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> tape," **Physica C**: Superconductivity, Volume 382, Issues 2-3, 1 November 2002, Pages 342-348, E. D. Specht, F. A. List, D. F. Lee, K. L. More, A. Goyal, W. B. Robbins and D. O'Neill.
182. "Chemical solution deposition of lanthanum zirconate buffer layers on biaxially textured Ni-1.7% Fe-3% W alloy substrates for coated-conductor fabrication," Sathyamurthy S, Paranthaman M, Aytug T, Kang BW, Martin PM, Goyal A, Kroeger DM, Christen DK, **J. of Mat. Res.**, 17 (6): 1543-1549 JUN 2002.
183. "Epitaxial titanium diboride films grown by pulsed-laser deposition," Zhai HY, Christen HM, Cantoni C, Goyal A, Lowndes DH, **Appl. Phys. Lett.**, 80 (11): 1963-1965, 2002.
184. "Bulk solution techniques to fabricate high J<sub>c</sub> YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> coated conductors," Paranthaman MP, Aytug T, Sathyamurthy S, Beach DB, Goyal A, Lee DF, Kang BW, Heatherly L, Specht ED, Leonard KJ, Christen DK, Kroeger DM, **Physica C**, 378: 1009-1012 Part 2, 2002.
185. Quantification and control of the sulfur c(2 x 2) superstructure on {100}(100) Ni for optimization of YSZ, CeO<sub>2</sub>, and SrTiO<sub>3</sub> seed layer texture, Cantoni C, Christen DK, Heatherly L, Kowaleski MM, List FA, Goyal A, Ownby GW, Zehner DM, Kang BW, Kroeger DM, **J. of Mat. Res.**, 17 (10): 2549-2554 OCT 2002.
186. "Lanthanum zirconate: A single buffer layer processed by solution deposition for coated conductor fabrication," S. Sathyamurthy, M. Paranthaman, H-Y. Zhai, H.M.

- Christen, P.M. Martin, A. Goyal, **J. of Mater. Res.**, vol. 17, pg. 2181-2184, 2002.
187. "Growth of YBCO thin films on TiN(001) and CeO<sub>2</sub>-coated TiN surfaces," I. Kim, P. Barnes, A. Goyal, S. Barnett, R. Biggers, G. Kozlowski, C. Varanasi, I. Maartens, R. Nekkanti, T. Peterson, T. Haugan and S. Sambasivan, **Physica C**, 377 (2002) 227-234.
188. "Microstructure of pulsed laser deposited YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> films on yttria-stabilized zirconia/CeO<sub>2</sub> buffered biaxially textured Ni substrates," Yang CY, Babcock SE, Ichinose A, Goyal A, Kroeger DM, Lee DF, List FA, Norton DP, Mathis JE, Paranthaman M, Park C, **Physica C**, 377 (3): 333-347 SEP 1 2002
189. "High-J<sub>c</sub> YBCO Coatings on Reel-to-Reel Dip-Coated Gd<sub>2</sub>O<sub>3</sub> Seed Buffer layers Epitaxially Fabricated on Biaxially Textured Ni and Ni-(3at%W-1.7at%Fe) Alloy Tapes," T. Aytug, M. Paranthaman, S. Sathyamurthy, B. Kang, D. Beach, C. Vallet, E. Specht, D. Lee, R. Feenstra, A. Goyal, D. Kroeger, K. Leonard, P. Martin and D. Christen, **Material Research Society, Symposium Proceedings**, Volume No. 689, pg. 211-216, edited by M. Paranthaman, M. Rupich, K. Salama, J. Mannhart and T. Hasegawa, 2002.
190. "Progress Towards a Low-Cost Commercial Coated Conductor," S. Annavarapu, N. Nguyen, S. Cui, U. Schoop, C. Thieme, M. Rupich, T. Kodenkandath, D. Verebelyi, W. Zhang, X. Li, Q. Li, M. Paranthaman, A. Goyal, C. Cantoni, M. Kowaleski and F. List, **Material Research Society, Symposium Proceedings**, Volume No. 689, pg. 231-237, edited by M. Paranthaman, M. Rupich, K. Salama, J. Mannhart and T. Hasegawa, 2002.
191. "Effect of Sulfur Surface Structure on Nucleation of Oxide Seed Layers on Textured Metals for Coated Conductor Applications," C. Cantoni, D. Christen, A. Goyal, L. Heatherly, G. Ownby, D. Zehner, D. Norton, C. Rouleau and H. Christen, **Material Research Society, Symposium Proceedings**, Volume No. 689, pg. 349-354, edited by M. Paranthaman, M. Rupich, K. Salama, J. Mannhart and T. Hasegawa, 2002.
192. "Fabrication of High-J<sub>c</sub> YBCO Coated Conductors Using Sol-Gel Buffer layers on Ni and Ni Alloy Substrates," S. Sathyamurthy, M. Paranthaman, B. Kang, H. Christen, E. Specht, M. Kowaleski, A. Goyal and P. Martin, **Material Research Society, Symposium Proceedings**, Volume No. 689, pg. 357-362, edited by M. Paranthaman, M. Rupich, K. Salama, J. Mannhart and T. Hasegawa, 2002.
193. "Microstructural Characterization of YBCO Films Grown by a Flourine-free MOD Process," Y. Xu, J. Lian, A. Goyal, D. Shi, M. Paranthaman, N. Rutter, L. Wang, P. Martin and D. Kroeger, **Physica C**, 2002.
194. "(La,Sr)TiO<sub>3</sub> as a candidate buffer for RABiTS coated conductors," D. P. Norton, K. Kim, D. K. Christen, J. D. Budai, B. C. Sales, M. F. Chisholm, D. M. Kroeger, A. Goyal, and C. Cantoni, **Physica C**, 372-376 (2002) 818-820.
195. "Recent progress in the fabrication of high-J(c) tapes by epitaxial deposition of YBCO on RABiTS," Goyal A, Lee DF, List FA, Specht ED, Feenstra R, Paranthaman M, Cui X, Lu SW, Martin PM, Kroeger DM, Christen DK, Kang BW, Norton DP, Park C, Verebelyi DT, Thompson JR, Williams RK, Aytug T, Cantoni C, **Physica C**, 357: 903-913, 2001.
196. "Reflection high-energy electron diffraction studies of epitaxial oxide seed-layer growth on rolling-assisted biaxially textured substrate Ni(001): The role of surface structure and chemistry," Cantoni C, Christen DK, Feenstra R, Goyal A, Ownby GW, Zehner DM, Norton DP, **Appl. Phys. Lett.**, 79 (19): 3077-3079, 2001.
197. Inter- and intragrain transport measurements in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> deformation textured coated conductors," Feldman DM, Larbalestier DC, Verebelyi DT, Zhang W, Li Q, Riley GN, Feenstra R, Goyal A, Lee DF, Paranthaman M, Kroeger DM, Christen DK, **Appl. Phys. Lett.**, 79 (24): 3998-4000 DEC 10 2001.
198. "Effect of calcium doping in low angle grain boundaries of YBCO on RABiTS," B. W. Kang, A. Goyal, F. A. List, D. K. Christen, H. Kerchner, S. Sathyamurthy, D. F. Lee, P. M. Martin and D. M. Kroeger, **Proc. 2001 Int. Workshop on**

- Superconductivity**, pg. 170-172, June 24-47, Honolulu, Hawaii, 2001.
199. "Progress towards a low-cost commercial coated conductor," S. Annavarapu, N. Nyuyen, S. Cui, U. Schoop, C. Thieme, M. Rupich, T. Kodenkandath, D. Verebelyi, W. Zhang, X. Li, Q. Li, M. Paranthaman, A. Goyal, C. Cantoni, M. Kowaleski and F. A. List, published in the **Proc. Of the MRS'2001 Fall Meeting**.
  200. "Effects of surface chemistry and structure on buffer layer epitaxy," C. Cantoni, D. K. Christen, D. P. Norton, R. Feenstra, A. Goyal, G. W. Ownby and D. M. Zehner, **Proc. 2001 Int. Workshop on Superconductivity**, pg. 29-31, June 24-47, Honolulu, Hawaii, 2001.
  201. "Progress in TFA solution processed YBCO coated conductors," C. Thieme, E. Thompson, S. Annavarapu, Q. Li, W. Zhang, M. W. Rupich, M. Paranthaman, A. Goyal, D. F. Lee, E. D. Specht and F. A. List, **Proc. 2001 Int. Workshop on Superconductivity**, pg. 233-235, June 24-47, Honolulu, Hawaii, 2001.
  202. "Inter and Intra grain transport measurements in YBCO deformation textured coated conductors," D. M. Feldman, D. C. Larbalestier, D. T. Verebelyi, W. Zhang, Q. Li, G. N. Riley, R. Feenstra, A. Goyal, D. F. Lee, M. Paranthaman, D. M. Kroeger and D. K. Christen, **Proc. 2001 Int. Workshop on Superconductivity**, pg. 257-259, June 24-47, Honolulu, Hawaii, 2001.
  203. "La<sub>0.7</sub>Sr<sub>0.3</sub>MnO<sub>3</sub>: a single, conductive-oxide buffer layer for the development of YBaCuO coated conductors," T. Aytug, M. Parathaman, B. W. Kang, S. Sathyamurthy, A. Goyal and D. K. Christen, **Appl. Phys. Lett.**, 79, 2205, (2001).
  204. "Fabrication of long lengths of epitaxial buffer layers on biaxially textured-Ni substrates using a continuous reel-to-reel dip-coating unit," M. Paranthaman, T.G. Chirayil, F.A. List, X. Cui, A. Goyal, D.F. Lee, E.D. Specht, P.M. Martin, R.K. Williams, D.M. Kroeger, J.S. Morrell, D.B. Beach, R. Feenstra, and D.K. Christen, "**J. Amer. Ceram. Soc.** 84, 273-278 (2001).
  205. "Continuous Deposition of Ex-Situ YBCO Precursor Films on Rolling-Assisted Biaxially Textured Substrates by Electron Beam Evaporation," X. Cui, F.A. List, D.M. Kroeger, D.F. Lee, M. Paranthaman, A. Goyal, B.W. Kang, E.D. Specht, and P.M. Martin, **Physica C** 351, 175-181 (2001).
  206. "Low Cost Y-Ba-Cu-O Coated Conductors," M.W. Rupich, Q. Li, S. Annavarapu, C. Thieme, W. Zhang, V. Prunier, M. Paranthaman, A. Goyal, D.F. Lee, E.D. Specht, and F.A. List, **IEEE Trans. on Applied Superconductivity**, 11, 2927-2930 (2001).
  207. "Magneto-Optical Imaging of Transport Currents in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> on RABiTS™," D. Matthew Feldman, Jodi L Reeves, Anatolii A. Polyanskii, Amit Goyal, Ron Feenstra, D.F. Lee, M. Paranthaman, D.M. Kroeger, D.K. Christen, Sue E. Babcock, David C. Larbalestier, **IEEE Trans. on Applied Superconductivity**, 11, 3772-3775 (2001).
  208. "Progress in solution-based YBCO coated conductors," Q. Li, W. Zhang, U. Schoop, M.W. Rupich, S. Annavarapu, D.T. Verebelyi, C.L.H. Thieme, V. Prunier, X. Cui, M.D. Teplitsky, L.G. Fritzemeier, G.N. Riley, M. Paranthaman, A. Goyal, D.F. Lee, and T.G. Holesinger, **Physica C** 357, 987-990 (2001).
  209. "Electron beam co-evaporation of Y-BaF<sub>2</sub>-Cu precursor films for YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-y</sub> coated conductors," S.W. Lu, F.A. List, X. Cui, M. Paranthaman, B.W. Kang, D.M. Kroeger, A. Goyal, P.M. Martin, and R.E. Ericson, **Supercond. Sci. Tech.** 14, 218-223 (2001).
  210. "Fabrication of Long Lengths of YBCO Coated Conductors using a Continuous Reel-to-Reel Dip-Coating Unit," M. Paranthaman, T.G. Chirayil, S. Sathyamurthy, D.B. Beach, A. Goyal, F.A. List, D.F. Lee, X. Cui, S.W. Lu, B. Kang, E.D. Specht, P.M. Martin, D.M. Kroeger, R. Feenstra, C. Cantoni, and D.K. Christen, **IEEE Trans. on Applied Superconductivity** 11, 3146-3149 (2001).
  211. "High current density coated YBCO coated conductors on strengthened, biaxially

textured Ni-W substrates,” M. Paranthaman, S. Sathyamurthy, T. Aytug, D. Beach, A. Goyal, B. W. Kang, R. Feenstra, D. K. Christen, D. F. Lee, P. M. Martin, L. Heatherly and D. M. Kroeger, Proc. **2001 Int. Workshop on Superconductivity**, pg. 87-90, June 24-47, Honolulu, Hawaii, 2001.

212. “Bilayer conductive oxide buffer layer structures for high- $J_c$  YBCO coated conductors,” T. Aytug, B. W. Kang, D. T. Verebelyi, C. Cantoni, S. Sathyamurthy, A. Goyal, P. M. Martin, M. Paranthaman and D. K. Christen, Proc. **2001 Int. Workshop on Superconductivity** pg. 90-92, June 24-47, Honolulu, Hawaii, 2001.
213. “Solution deposition approaches to coated conductor fabrication on biaxially textured Ni-W substrates,” S. Sathyamurthy, B. W. Kang, M. Paranthaman, T. Aytug, R. Feenstra, A. Goyal and D. M. Kroeger, **2001 Int. Workshop on Superconductivity** pg. 119-121, June 24-47, Honolulu, Hawaii, 2001.
214. “Grain Boundaries in High- $T_c$  Superconductors – Data, Ideas and Prospects,” J. Mannhart, G. Hammerl, H. Bielefeldt, H. Hilgenkamp, S. Leitenmeier, A. Schmehl, C. W. Schneider, R. R. Schultz, A. Goyal, B. W. Kang, F. A. List, D. K. Christen and D. M. Kroeger, Published in the **Proc. Of the 2001 IWCC Conference**, Gottengen, Germany, May, 2001.
215. Growth and characterization of conductive SrRuO<sub>3</sub> and LaNiO<sub>3</sub> multilayers on textured Ni tapes for high- $J(c)$  YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-d</sub> coated conductors, Aytug T, Kang BW, Cantoni C, Specht ED, Paranthaman M, Goyal A, Christen DK, Verebelyi DT, Wu JZ, Ericson RE, Thomas CL, Yang CY, Babcock SE, **J. of Mater. Res.** 16 (9): 2661-2669 SEP 2001.
216. Recent progress in the fabrication of high- $J(c)$  tapes by epitaxial deposition of YBCO on RABiTS, Goyal A, Lee DF, List FA, Specht ED, Feenstra R, Paranthaman M, Cui X, Lu SW, Martin PM, Kroeger DM, Christen DK, Kang BW, Norton DP, Park C, Verebelyi DT, Thompson JR, Williams RK, Aytug T, Cantoni C, Proc. of the ISS'2000, **Advances in Superconductivity XIII**, Part II, pg. 903-913, 2001.
217. “Fabrication of Long Lengths of Epitaxial Buffer Layers on Biaxially Textured-Ni Substrates Using a Continuous Reel-to-Reel Dip-Coating Unit,” Paranthaman, M., T. G. Chirayil, F. A. List, X. Cui, A. Goyal, D. F. Lee, E. D. Specht, P. M. Martin, R. K. Williams, D. M. Kroeger, J. S. Morrell, C. B. Beach, R. Feenstra, and D. K. Christen, **Journal of American Ceramic Society**, 84(2): 273-278, Feb. 2001.
218. “Grain Boundary Character Based Design of Polycrystalline High Temperature Superconducting Wires,” A. Goyal, in the book titled “**Electron Backscatter Diffraction in Materials Science**” edited by A. J. Schwartz, M. Kumar and B. L. Adams, **Kluwer Academic / Plenum Publishers**, pgs. 319-333, 2000.
219. “Factors Affecting the Critical Current Density of Epitaxial HTS on RABiTS,” A. Goyal, E. D. Specht, R. Feenstra, D. F. Lee, F. A. List, M. Paranthaman, D. Kroeger and D. K. Christen, published in the **Proc. of the IWCC'2000**, Fukuoka, Japan, Oct. 2000.
220. B.L. Adams, B. Henrie, and A. Goyal, “Microstructure-Sensitive Compliant Mechanism Design,” in **Plastic and Viscoplastic Response of Materials and Metal Forming**, eds. A. S. Khan, H. Zhang, and Y. Yuan, NEAT Press, Fulton, MD (2000) p. 513-515.
221. “Microstructural homogeneity and electromechanical connectivity of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> grown on rolling-assisted biaxially textured coated conductor substrates,” C.-Y. Yang, A. Pashitski, A. Polyanskii, D.C. Larbalestier, S.E. Babcock, A. Goyal, F.A. List, C. Park, M. Paranthaman, D.P. Norton, D.F. Lee, and D.M. Kroeger, **Physica C** 329, 114-120 (2000).
222. “Demonstration of High Current Density YBCO Coated Conductors on RE<sub>2</sub>O<sub>3</sub>-Buffered Ni Substrates with Two New Alternative Architectures,” M. Paranthaman, R. Feenstra, D.F. Lee, D.B. Beach, J.S. Morrell, T.G. Chirayil, A. Goyal, X. Cui, D.T. Verebelyi, J.E. Mathis, P.M. Martin, D.P. Norton, E.D. Specht, D.K. Christen, and D.M. Kroeger, **Advances in Cryogenic Engineering**, Kluwer

Academic/Plenum Publishers, New York, Edited by U. Balu Balachandran, D.U. Gubser, K. Ted Hartwign and V.A. Bardos, Vol. 46, Part B, pp. 879-886 (2000).

223. "Epitaxial yttria-stabilized zirconia on biaxially-textured (001) Ni for YBCO coated conductor, Park C, Norton DP, Lee DF, Verebelyi DT, Goyal A, Christen DK, Budai JD, **Physica C**, 341: 2481-2482, Part 4 NOV 2000.
224. "Low angle grain boundary transport in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  coated conductors," D.T. Verebelyi, D.K. Christen, R. Feenstra, C. Cantoni, A. Goyal, D.F. Lee, M. Paranthaman, P.N. Arendt, R.F. DePaula, J.R. Groves, and C. Prouteau, **Appl. Phys. Lett.** 76, 1755-1757 (2000).
225. "Low-cost YBCO Coated Conductor Technology," A.P. Malozemoff, S. Annavarapu, L. Fritzemeier, Q. Li, V. Prunier, M. Rupich, C. Thieme, W. Zhang, A. Goyal, M. Paranthaman, and D.F. Lee, **Superconductor Sci. & Technol.** 13, 473-476 (2000).
226. "Epitaxial growth of  $\text{La}_2\text{Zr}_2\text{O}_7$  thin films on rolled Ni-substrates by sol-gel process for high  $T_c$  superconducting tapes," T.G. Chirayil, M. Paranthaman, D.B. Beach, D.F. Lee, A. Goyal, R.K. Williams, X. Cui, D.M. Kroeger, R. Feenstra, D.T. Verebelyi, and D.K. Christen, **Physica C** 336, 63-69 (2000).
227. "YBCO Coated Conductors with High Engineering Current Density," M. Paranthaman, C. Park, X. Cui, A. Goyal, D.F. Lee, P.M. Martin, T.G. Chirayil, D.T. Verebelyi, D.P. Norton, D.K. Christen, and D.M. Kroeger, **J. Mater. Res.** 15, 2647-2652 (2000).
228. "Epitaxy of  $\text{HgBa}_2\text{CaCu}_2\text{O}_6$  superconducting films on biaxially textured Ni substrates, Xie YY, Aytug T, Wu JZ, Verebelyi DT, Paranthaman M, Goyal A, Christen DK, **Appl. Phys. Lett.**, 77 (25): 4193-4195 DEC 18 2000.
229. "Progress Towards A Low-Cost Conductor Technology," S. Annavarapu, L. Fritzemeier, Q. Li, A. Malozemoff, V. Prunier, M.W. Rupich, C. Thieme, W. Zhang, M. Gopal, I. Seleznev, M.J. Cima, M. Paranthaman, A. Goyal, and D.F. Lee, **Physica C** 341-348, 2319-2322 (2000).
230. "An all-sputtered buffer layer architecture for high- $J_c$   $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  coated conductors," T. Aytug, J.Z. Wu, B.W. Kang, D.T. Verebelyi, C. Cantoni, E.D. Specht, A. Goyal, and M. Paranthaman, **Physica C** 340, 33-40 (2000).
231. B. L. Adams, B. Henrie, and A. Goyal, "Microstructure-Sensitive Compliant Mechanism Design," in **Plastic and Viscoplastic Response of Materials and Metal Forming**, eds. A. S. Khan, H. Zhang, and Y. Yuan, NEAT Press, Fulton, MD (2000) p. 513-515 (invited).
232. "Epitaxial Growth of Gadolinium Oxide on Roll-textured Nickel", J. S. Morrell, A. B. Xue, E. D. Specht, A. Goyal, P.M. Martin, D. F. Lee, R. Feenstra, D. T. Verebelyi, D. K. Christen, T. G. Chirayil, M. Paranthaman, C. E. Vallet and D. B. Beach, **J. Mater. Res.**, 15, 621, 2000.
233. "Scaling of Percolative Current Flow to Long Lengths in Biaxially Textured Conductors," E. D. Specht, A. Goyal and D. M. Kroeger, **Supercond. Sci. & Technology**, 13, 592, 2000.
234. "High Current Density  $\text{HgBa}_2\text{CaCu}_2\text{O}_6$  Superconductivity Films on Textured Ni Substrates," Xie, Y. Y., T. Aytug, J. Z. Wu, D. T. Verebelyi, M. Paranthaman, A. Goyal, and D. K. Christen, **Appl. Phys. Lett.**, 77(25): 4193-4195, Dec. 2000.
235. "Nucleation of Epitaxial Yttria-Stabilized Zirconia on Biaxially Textured (001) Ni for Deposited Conductors," Park, C., D. P. Norton, D. T. Verebelyi, D. K. Christen, J. D. Budai, D. F. Lee, and A. Goyal, **App. Phys. Lett.** 76, 2427 (2000).
236. "Microstructural homogeneity and electromagnetic connectivity of  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  grown on rolling-assisted biaxially textured coated conductor substrates," Yang C.Y., Pashitski A., Polyanskii A., Larbalestier D.C., Babcock S.E., Goyal A., List F.A., Park C., Paranthaman M., Norton D.P., Lee D.F., Kroeger D.M., **Physica C** 329, 114, 2000.
237. "Transport and structural characterization of epitaxial  $\text{Nd}_{1-x}\text{Ba}_x\text{Cu}_3\text{O}_y$  thin films

grown on LaAlO<sub>3</sub> and Ni metal substrates by pulsed-laser deposition,” C. Cantoni, D.P. Norton, D.K. Christen, A. Goyal, D.M. Kroeger, D.T. Verebelyi, M. Paranthaman, **Physica C** 324, 177-186 (1999).

238. “Texture Formation and Grain Boundary Networks in Rolling Assisted Biaxially Textured Substrates (RABiTS) and in Epitaxial YBCO Films on such Substrates”, A. Goyal, S. X. Ren, E. D. Specht, D. M. Kroeger, R. Feenstra, D. Norton, M. Paranthaman, D. F. Lee and D. K. Christen, **Micron**, 30, 463-478, 1999.
239. “Using RABiTS to Fabricate High-temperature Superconducting Wire”, A. Goyal, R. Feenstra, F. A. List, T. Chirayil, D. T. Verebelyi, X. Cui, E. D. Specht, D. K. Christen, and P. M. Martin, **JOM, July 1999 – 21<sup>st</sup> Century Technologies**, 51 (1999) 19.
240. “Texture Development, Recrystallization, and Transference of Texture Between Ceramic Multilayers Epitaxially Grown on RABiTS,” A. Goyal, R. Feenstra, E. D. Specht, D. M. Kroeger, D. F. Lee, M. Paranthaman, F. A. List and D. K. Christen, published in the **Proceedings of the ICOTOM12** Conference, 1999.
241. “Transport and Structural Characterization of Nd<sub>1+x</sub>Ba<sub>2-x</sub>Cu<sub>3</sub>O<sub>y</sub> thin Films grown on LaAlO<sub>3</sub> and Ni Metal Substrates by Pulsed Laser Ablation”, C. Cantoni, D. P. Norton, D. K. Christen, A. Goyal, D. M. Kroeger, D. T. Verebelyi and M. Paranthaman, **Physica C**, 324, 177, 1999.
242. “Epitaxial Growth of Yb<sub>2</sub>O<sub>3</sub> Buffer Layers on Biaxially Textured-Ni (100) substrates by Sol-gel Process” T.G. Chirayil, M. Paranthaman, D.B. Beach, J.S. Morrell, E.Y. Sun, A. Goyal, R.K. Williams, D.F. Lee, P.M. Martin, D.M. Kroeger, R. Feenstra, D.T. Verebelyi, and D.K. Christen, **Mat. Res. Soc. Symp. Proc.** 574, 51-56 (1999).
243. “Response of superconducting characteristics of Hg-based high T<sub>c</sub> thin films to photolithographic processes,” C. Cantoni, D.P. Norton, D.K. Christen, A. Goyal, D.M. Kroeger, D.T. Verebelyi, and M. Paranthaman, **Physica C** 325, 56-60 (1999).
244. “Low-cost YBCO Coated Conductor Technology,” A.P. Malozemoff, S. Annavarapu, L. Fritzemeier, Q. Li, V. Prunier, M. Rupich, C. Thieme, W. Zhang, A. Goyal, M. Paranthaman, and D.F. Lee, Published in the **EUCAS meeting Proc.**, Spain, September 1999.
245. “Effects of Grain Boundaries on Critical Currents of Coated Conductors”, D. T. Verebelyi, R. Feenstra, A. Goyal and D. K. Christen, C. Prouteau, P. N. Arendt, R. F. DePaula and J. R. Grooves, **Proc. of the International Workshop on Critical Currents**, p. 51, Wisconsin, July, 1999.
246. “Alternating Transport-Current Flow in Superconducting Films – The Important Role of a Geometrical Barrier to Vortex Motion”, H. R. Kerchner, D. P. Norton, A. Goyal, J. D. Budai, D. K. Christen, D. M. Kroeger, M. Paranthaman, D. F. Lee, F. A. List, R. Feenstra and E. H. Brandt, **Physical Review B**, 60, (1999) 6878.
247. “Growth of Biaxially Textured Re<sub>2</sub>O<sub>3</sub> Buffer Layers on Rolled Ni Substrates Using Reactive Evaporation for HTS Coated Conductors”, M. Paranthaman, D. F. Lee, A. Goyal, E. D. Specht, P. M. Martin, X. Cui, J. E. Mathis, R. Feenstra, D. K. Christen and D. M. Kroeger, **Supercond. Sci & Tech.**, 12, 319, 1999.
248. “Alternating Current Losses in Biaxially Textured YBCO Films Deposited on Ni Tapes,” Kerchner HR, Norton DP, Goyal A, Budai JD, Christen DK, Kroeger DM, Specht ED, He Q, Paranthaman M, Lee DF, Sales BC, List FA, Feenstra R, **Appl. Phys. Lett.**, 71(4): 2029-2031, Oct. 1997.
249. “Alternative Buffer Architectures for High-J<sub>c</sub> YBCO Superconducting Deposits on RABiTS”, D. F. Lee, M. Paranthaman, J. E. Mathis, A. Goyal, D. M. Kroeger, E. D. Specht, R. K. Williams, F. A. List, P. M. Martin, C. Park, D. Norton and D. K. Christen, **Jap. J. of Appl. Phys.**, 38(2B), L178-180, 1998.
250. “Continuous Growth of Epitaxial CeO<sub>2</sub> Buffer Layers on Rolled Ni Tapes By Electron Beam Evaporation,” X. Cui, F. A. List, D. M. Kroeger, A. Goyal, D. F. Lee, J. E. Mathis, E. D. Specht, P. M. Martin, R. Feenstra, D. T. Verebelyi, D. K. Christen and M. Paranthaman, **Physica C**, 316, 27, 1999.
251. “Demonstration of High Current Density YBCO Coated Conductors on Re<sub>2</sub>O<sub>3</sub>-Buffered Ni Substrates With Two New Alternative Architectures,” Paranthaman, M.,

R. Feenstra, D. F. Lee, D. B. Beach, J. S. Morrell, T. G. Chirayil, A. Goyal, X. Cui, D. T. Verebelyi, J. E. Mathis, P. M. Martin, D. P. Norton, E. D. Specht, D. K. Christen, and D. M. Kroeger, **Advances in Cryogenic Engineering**, ed. By Plenum Publishing Corporation, 1999.

252. "Optimization of Buffer Layers on Rolled-Ni Substrates for High Current YBCO and Tl, Bi-1223 Coated Conductors Using Ex-Situ Precursor Approaches," Paranthaman, M., D. F. Lee, R. Feenstra, A. Goyal, D. T. Verebelyi, D. K. Christen, E. D. Specht, F. A. List, P. M. Martin, D. M. Kroeger, Z. F. Ren, W. Li, D. Z. Wang, J. Y. Lao, and J. H. Wang, p. 2268 in **IEEE Trans. Appl. Superconduct.**, 9(2), June 1999, Pages: 2268-2271.
253. "High Resolution TEM/AEM Characterization of Epitaxial Oxide Multilayers Fabricated by Laser Ablation on Biaxially Textured Ni, E. Y. Sun, A. Goyal et al., **Physica C**, 321, 29, 1999.
254. "Fabrication of high current YBCO coated conductors on RABiTS, M. Paranthaman, F. A. List, D. F. Lee, A. Goyal, R. Feenstra, D. P. Norton, C. Park, D. T. Verebelyi, D. K. Christen, P. M. Martin, E. D. Specht and D. M. Kroeger, To be published in the proceedings of the **9th CIMTEC Congress and Forum on New Materials**, Florence, Italy, June 14-19, 1999, p. 185, Ed. by P. Vincenzini, Techna Srl.
255. "Growth of textured buffer layers and superconductors on rolled-Ni substrates using sol-gel alkoxide precursors", M. Paranthaman, S. S. Shoup, D. B. Beach, J. S. Morell, A. Goyal, E. D. Specht, J. E. Mathis, D. T. Verebelyi and D. K. Christen, To be published in the proceedings of the **9th CIMTEC Congress and Forum on New Materials**, Florence, Italy, June 14-19, 1999, p. 169, Ed. by P. Vincenzini, Techna Srl.
256. "In-plane Aligned Superconducting  $Tl_{0.8}Bi_{0.22}Sr_{1.6}Ba_{0.4}Ca_2Cu_3O_9$  Films on RABiTS", Z. F. Ren, W. Li, Z. Wang, J. Y. Lao, J. H. Wang, M. Paranthaman, D. Verebelyi, D. Christen, D. Lee, A. Goyal and D. M. Kroeger, **Physica C**, 313, 341, 1999.
257. "Superconducting Thallium Oxide Films from Electrodeposited Precursors", R. N. Bhattacharya, P. A. Parilla, R. D. Blaugher, Z. F. Ren, W. Li, J. H. Wang, Y. T. Yang, A. M. Hermann, M. Paranthaman, A. Goyal, D. Verebelyi and D. Christen, Proc. of the 1998 Applied Superconductivity Conference, Palm Desert, CA, **IEEE Transactions**, 9(2): 1681-1683, 1999.
258. "Optimization of Buffer Layers on Rolled-Ni Substrates for High Current YBCO and Tl,Bi-1223 Coated Conductors Using Ex-situ Precursor Approaches", M. Paranthaman, D. Lee, R. Feenstra, A. Goyal, D. Verebelyi, D. Christen, E. Specht, F. List, P. martin and D. M. Kroeger, Proc. of the 1998 Applied Superconductivity Conference, Palm Desert, CA, **IEEE Transactions**, 9(2): 2268-2271, 1999.
259. "Electromagnetic Connectivity and Microstructure in YBCO Films on RABiTS Substrates," Babcock SE, Yang CY, Reeves JL, Wu Y, Pashitski AE, Polyanskii A, Larbalestier DC, Goyal A, Paranthaman M, List FA, Norton DP, Kroeger DM, Ichinose A, **Mat. Sci. For.**, 294-2: 165-168, 1999.
260. "Buffer Layers and Thallination of Tl-based Superconductors on Flexible Metal Substrates", P. Parilla, C. Carlson, Y. Wang, R. Bhattacharya, R. Blaugher, D. Ginley, M. Paranthaman, A. Goyal, D. Christen, D. Kroeger, Proc. of the 1998 Applied Superconductivity Conference, Palm Desert, CA, **IEEE Transactions**, 9(2): 1673-1676, 1999.
261. "Long Length Fabrication of YBCO on RABiTS Using Pulsed Laser Ablation", C. Park, D. Norton, D. Christen, J. Budai, A. Goyal, D. Kroeger and M. Paranthaman, Proc. of the 1998 Applied Superconductivity Conference, Palm Desert, CA, **IEEE Transactions**, 9(2): 2276- 2279, 1999.
262. "Low Cost Combustion Vapor Deposition of Epitaxial Buffer layers and Superconductors", S. Shoup, D. Cousins, A. Hunt, S. Shanmughan, M. Paranthaman, A. Goyal, P. Martin and D. Kroeger, Proc. of the 1998 Applied Superconductivity Conference, Palm Desert, CA, **IEEE Transactions**, 9(2): 2426- 2429, 1999.
263. "Bend Strain Tolerance of Critical Currents of Y-123 Films Deposited on roll-

textured (001) Ni”, C. Park, D. P. Norton, J. Budai, D. Christen, D. Verebelyi, R. Feenstra, D. Lee, A. Goyal, D. Kroeger and M. Paranthaman, Proc. of the 1998 Applied Superconductivity Conference, Palm Dessert, CA, **IEEE Transactions**, 9(2): 2276- 2279, 1999.

264. “Reel-to-reel Continuous Deposition of Epitaxial CeO<sub>2</sub> Buffer Layers on Biaxially Textured Ni Tapes by Electron Beam Evaporation,” Cui, X.; List, F.A.; Kroeger, D.M.; Goyal, A.; Lee, D.F.; Mathis, J.; Specht, E.D.; Martin, P.M.; Feenstra, R.; Verebelyi, D.T.; Christen, D.K.; Paranthaman, M.; **IEEE Transactions**, 9(2): 1967-1970, 1999.
265. “Growth of Biaxially-Oriented Conductive LaNiO<sub>3</sub> Buffer-Layers on Textured Ni Tapes for High-T<sub>c</sub> Coated Conductors”, Q. He, D. K. Christen, R. Feenstra, D. P. Norton, M. Paranthaman, E. D. Specht, A. Goyal and D. M. Kroeger, **Physica C**, 314, 105, 1998.
266. “Bend strain tolerance of critical currents for YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> films deposited on rolled-textured, (001)Ni,” Park C, Norton DP, Budai JD, Christen DK, Verebelyi D, Feenstra R, Lee DF, Goyal A, Kroeger DM, Paranthaman M., **Appl. Phys. Lett.**, 73, 1904, 1998.
267. “Microstructure of Electron-Beam Evaporated Epitaxial Ytria-Stabilized Zirconia / CeO<sub>2</sub> Bilayers on Biaxially Textured Ni Tape,” C. Yang, S. E. Babcock, A. Goyal. M. Paranthaman, F. A. List, D. P. Norton, D. M. Kroeger and A. Ichinose, **Physica C**, 307 (1-2): 87-88, Oct. 1998.
268. “High Critical Current Density YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Tapes Using the RABiTS Approach”, A. Goyal, F. A. List, J. Matthis, M. Paranthaman, E. D. Specht, C. Park, D. F. Lee, D. M. Kroeger, D. K. Christen, D. D. Budai and P. M. Martin, **J. of Superconductivity**, 11, 481, 1998.
269. “Epitaxial HTS on RABiTS: A Route Towards the Next Generation Superconducting Wire”, A. Goyal et al., **Proc. 1998 Int. Workshop on Superconductivity**, July 12-15, Okinawa, Japan, pg. 69, 1998.
270. “Biaxially Textured YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> Conductors on RABiTS with Critical Current Densities of 2-3 MA/cm<sup>2</sup>”, J. E. Mathis, A Goyal et al., **Japan. J. of Appl. Phys.**, 37, 11B, 1998.
271. “High J<sub>c</sub> YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> Films on Buffer Layers made by Sputtering, F. A. List, A. Goyal et al., **Physica C**, 302, 87-92, 1998.
272. “Laser Ablated Epitaxial LaAlO<sub>3</sub> Buffer Layers on Biaxially Textured Ni Substrates for Superconducting Tapes”, C. M. Carlson, J. C. Price, P. A. Parilla, D. S. Ginley, R. D. Blaugher, A. Goyal, M. Paranthaman, D. M. Kroeger and D. K. Christen, **Physica C**, 304, 82-88, 1998.
273. “Development of Coated Conductors”, J. E. Hack, A. Goyal and D. Moon, To be published in the proceedings of the **8th US-Japan Workshop on Superconductivity**, Dec. 8-10, National High Field Magnet Laboratory, Tallahassee, Florida, 1998.
274. “High-J<sub>c</sub>, Epitaxial HTS Conductors on Rolling-assisted-biaxially-textured-substrates (RABiTS)”, A. Goyal et al., published in the **Proceedings of the 8th US-Japan Workshop on HTS**, Dec. 8-10, National High Field Magnet Laboratory, Tallahassee, Florida, 1998.
275. “Microstructural Features of RABiTS Deposited by E-beam Evaporation”, S. E. Babcock, C. Yang, A. Polyanskii, D. C. Larbalestier, A. Goyal, M. Paranthaman and D. M. Kroeger, published in the **Proceedings of the 8th US-Japan Workshop on HTS**, Dec. 8-10, National High Field Magnet Laboratory, Tallahassee, Florida, 1998.
276. “Progress on Tl-based Wire and Tape”, P. A. Parilla, C. M. Carlson, R. D. Blaugher, A. Goyal, M. Paranthaman, D. M. Kroeger and D. K. Christen, published in the **Proceedings of the 8th US-Japan Workshop on HTS**, Dec. 8-10, National High Field Magnet Laboratory, Tallahassee, Florida, 1998.
277. “Cube-textured Ni Substrates for High-temperature Superconductors”, E. D. Specht, A. Goyal, D. F. Lee, D. M. Kroeger, M. Paranthaman, R. K. Williams and D. K.



- Christen, **Supercond. Sci. & Tech.**, 11, 945, 1998.
278. "Biaxially textured, epitaxial  $\text{LaAlO}_3$  thick films on Ni using a sol-gel technique", S. S. Shoup, M. Paranthaman, A. Goyal, E. D. Specht, D. F. Lee, D. M. Kroeger and D. B. Beach, **J. Am. Ceram. Soc.**, 81(11), 301-3021, 1998.
279. "Epitaxial YBCO films on rolled-textured metals for high temperature superconducting applications", D. P. Norton, C. Park, C. Prouteau, D. K. Christen, A. Goyal, E. Y. Sun, D. F. Lee, D. M. Kroeger, E. Specht and M. Paranthaman, **J. of Mater. Sc. & Engg. B**, 56(2-3), 86-94, 1998.
280. "Epitaxial Film Growth of  $\text{Tl}_{0.78}\text{Bi}_{0.22}\text{Sr}_{1.6}\text{Ba}_{0.4}\text{Ca}_2\text{Cu}_3\text{O}_{9-y}$  on Rolling Assisted Biaxially Textured Nickel Substrates with  $\text{YSZ}$  and  $\text{CeO}_2$  Buffer Layers", Z. F. Ren, J. Y. Lao, L. P. Guo, J. H. Wang, J. D. Budai, D. K. Christen, A. Goyal, M. Paranthaman, E. D. Specht and J. R. Thompson, **J. of Superconductivity**, vol. 1, pgs 159-161, 1998.
281. "Thick Film Processing for Tl-oxide Wire and Tape", R. N. Bhattacharya, R. D. Blaugher, A. Natarajan, C. M. Carlson, P. A. Parilla, D. S. Ginley, M. Paranthaman, A. Goyal and D. M. Kroeger, **J. of Superconductivity**, vol. 11, pgs. 173-180, 1998.
282. "Exploring Spatial Resolution in Electron Back-scattered Diffraction (EBSD) Experiments via Monte Carlo Simulation", S. X. Ren, E. A. Kenik, K. B. Alexander and A. Goyal, **Ultramicroscopy**, vol. 4, pgs 15-22, 1998.
283. "Epitaxial Superconductors on Rolling Assisted Biaxially Textured Superconductors (RABiTS): A Route Towards High Critical Current Density Wire", A. Goyal et al., **Applied Superconductivity**, commemorating the 10th anniversary of HTS, vol. 4, pgs. 403-429, 1997.
284. "Conductors With Controlled Grain Boundaries: An Approach to the Next Generation, High Temperature Superconducting Wire," A. Goyal, D. P. Norton et al., **Special 10th anniversary on High Temperature Superconductors of J. of Materials Research**, vol. 12, pgs. 2924-2940, 1997.
285. "Alternating current losses in biaxially textured  $\text{YBa}_2\text{Cu}_3\text{O}_7$ -delta films deposited on Ni tapes," Kerchner HR, Norton DP, Goyal A, Budai JD, Christen DK, Kroeger DM, Specht ED, He Q, Paranthaman M, Lee DF, Sales BC, List FA, Feenstra R, **Appl. Phys. Lett.**, 71, 2029, 1997.
286. "Epitaxial  $\text{YBa}_2\text{Cu}_3\text{O}_7$  on Biaxially Textured (001) Ni: An Approach to High Critical Current Density Superconducting Tapes", D. P. Norton, A. Goyal et al., Proc. of the **ISTEC Workshop on HTS Materials**, 1997.
287. "Critical Current, Film Thickness, and Grain Alignment For Spray-pyrolyzed Films of Tl-1223", E. D. Specht, A. Goyal, D. M. Kroeger, A. Mogro-Campero, P. J. Bednarczyk, J. E. Tkaczyk, and J. A. Deluca, **Physica C**, 270, pgs 91-96, 1997.
288. "Growth of Biaxially Textured Buffer Layers on Rolled-Ni Substrates by Electron Beam Evaporation", M. Paranthaman, A. Goyal et al., **Physica C**, 275, 266, 1997.
289. "Low Cost, Single-crystal-like Substrates with Tailored Microstructures", A. Goyal, D. P. Norton, M. Paranthaman, F. List, E. Specht, D. M. Kroeger and D. K. Christen, Proc. of the "**First Conference on Future Generation of Photovoltaic Technologies**", Denver, Colorado, March 24-28, 1997.
290. "Fabrication of High Critical Current Density Superconducting Tapes by Epitaxial Deposition of YBCO Thick Films on Biaxially Textured Metal Substrates", A. Goyal et al., published in the **Proc. of the 9th International Symposium on Superconductivity**, held Oct. 21-24, Sapporo, Hokkaido, Japan, 1996, pgs. 685-688, Springer-Verlag, Tokyo, 1997.
291. "Grain Boundary Networks and Percolative Current Flow in Polycrystalline, HTS Conductors", A. Goyal, E. D. Specht and D. M. Kroeger, published in the **Proc. of the 9th International Symposium on Superconductivity**, held Oct. 21-24, Sapporo, Hokkaido, Japan, 1996, pgs. 815-818, Springer-Verlag, Tokyo, 1997.
292. "Grain Boundary Studies of High Temperature Superconducting Materials Using Electron Backscatter Kikuchi Diffraction", A. Goyal, E. D. Specht, Z. L. Wang and D. M. Kroeger, **Ultramicroscopy**, 67, pgs. 35-57, 1997.
293. "Low-cost substrates for Photovoltaics", D. P. Norton, A. Goyal et al., Proc. of the

“**First Conference on Future Generation of Photovoltaic Technologies**”, Denver, Colorado, March 24-28, 1997.

294. “Epitaxial Oxides on Biaxially Textured Metals”, D. P. Norton, A. Goyal et al., published in the **Proceedings of the MRS Spring Meeting**, March 31 - April 3, 1997.
295. “Fabrication and Properties of High-J<sub>c</sub>, Biaxially Aligned 123 Thick Films on metallic Tape Substrates”, D. K. Christen, D. P. Norton, A. Goyal, J. D. Budai, R. Feenstra, Q. He, C. E. Klabunde, D. M. Kroeger, D. F. Lee, F. A. List, M. Paranthaman, B. Saffian, E. D. Specht and M. F. Chisholm, published in the Proceedings of the **International Workshop on Critical Currents in Superconductors for Practical Applications**, Xi’an, China, March 6-8, 1997.
296. “Growth of TlBa<sub>2</sub>Ca<sub>2</sub>Cu<sub>3</sub>O<sub>9-y</sub> Superconducting Films with Local Biaxial Alignment extending up to 5 mm on Ag Substrates using a Spray Pyrolysis Technique,” M. Paranthaman, F. A. List, A. Goyal, E. D. Specht, C. E. Vallet, D. M. Kroeger, and D. K. Christen, **J. Mater. Res**, 12, p. 619, 1997.
297. “Development of Biaxially Textured Buffer Layers on Rolled-Ni Substrates for High Current YBCO Coated Conductors”, M. Paranthaman, A. Goyal et al., **Proc. of the 9th International Symposium on Superconductivity**, held Oct. 21-24, Sapporo, Hokkaido, Japan, pgs. 669-672, Springer-Verlag, Tokyo, 1997.
298. “Deposition of Biaxially-Oriented Metal and Oxide Buffer-Layer Films on Textured Tapes: New Substrates for High-Current, High-Temperature Superconductors, Q. He, D. K. Christen, J. D. Budai, E. D. Specht, D. F. Lee, A. Goyal, D. P. Norton, M. Paranthaman, F. A. List and D. M. Kroeger, **Physica C**, 275, 155, 1997.
299. “Reconstruction of Critical Current Flow Patterns and Imaging of Current-Limiting Defects in Polycrystalline High Temperature Superconducting Films”, A. E. Pashitski, A. A. Polyanskii, A. Gurevich, D. C. Larbalestier, A. Goyal, E. D. Specht, D. M. Kroeger and E. Tkaczuk and J. A. DeLuca, **Science**, 275, p. 367-369, 1997.
300. “Processing and Long-Range Critical Current Transport in High Temperature Superconductors”, D. M. Kroeger, D. F. Lee, A. Goyal and E. D. Specht, in **Synthesis and Properties of Advanced Materials**, Kluwer Academic Publications, 1997, pp. 117-148.
301. “High Critical Current Density Superconducting Tapes By Epitaxial Deposition of YBCO Thick Films on Biaxially Textured Metals”, A. Goyal, D. P. Norton, J. D. Budai, M. Paranthaman, E. D. Specht, D. M. Kroeger, D. K. Christen, Q. He, B. Saffian, F. A. List, D. F. Lee, P. M. Martin, C. E. Klabunde, E. Hatfield and V. K. Sikka, **Appl. Phys. Lett.**, vol. 69, No. 12, Sept. 16, 1996.
302. “Percolative Current Flow in High-J<sub>c</sub>, Polycrystalline High Temperature Superconductors”, A. Goyal, E. D. Specht, D. K. Christen, D. M. Kroeger, A. Pashitski, A. Polyanskii and D. C. Larbalestier, **J. of Metals, Minerals and Materials (JOM)**, vol. 48, No. 10, p.24-29, 1996.
303. “Epitaxial YBCO on Biaxially Textured Nickel (001): An Approach to Superconducting Tapes with high Critical Current Density”, D. P. Norton, A. Goyal, J. D. Budai, D. K. Christen, D. M. Kroeger, E. D. Specht, Q. He, B. Saffian, M. Paranthaman, C. Klabunde, D. F. Lee, B. C. Sales and F. A. List, **Science**, 274, 755-757, 1996.
304. “Texture Development in Metals and Intermetallics”, A. Goyal, B. Kad and P. Desai, **Invited Overview Report for DARPA**, 1996.
305. “Local Texture, Current Flow, and Superconductive Transport Properties of Tl1223 Deposits on Practical Substrates”, D. K. Christen, E. D. Specht, A. Goyal, Q. He, M. Paranthaman, C. E. Klabunde, R. Feenstra, F. A. List, D. M. Kroeger and J. E. Tkaczuk, J. A. Deluca, Z. F. Ren, C. A. Wang and J. H. Wang, **Proceedings of the 10th Anniversary HTS Workshop on Physics**, Materials and Applications, Houston, TX, March 12-16, 1996.
306. “Biaxially Textured Metallic Substrates for High Temperature Superconductors”, D. K. Christen, D. P. Norton, A. Goyal, J. D. Budai, Q. He, C. Klabunde, D. M. Kroeger, M. Paranthaman, B. Saffian and E. D. Specht, **Czechoslovak Journal of**

- Physics**, 46, 1531 (1996).
307. "Transport Properties of Tl-1223 Deposits for Possible Conductor Applications", D. K. Christen, Q. He, M. Paranthaman, C. E. Klabunde, R. Feenstra, A. Goyal, F. A. List, E. D. Specht, and D. M. Kroeger, p. 116 in the proceedings of the **Seventh US-Japan Workshop on HTS Materials**, Tsukuba, Japan, October 24-25, 1996.
  308. "High- $J_c$  Tl-1223 Thick films on Polycrystalline Ag by Spin Coating", Q. He, D. K. Christen, C. Klabunde, J. E. Tkaczyk, K. W. Lay, M. Paranthaman, J. R. Thompson, A. Goyal, A. J. Perdaza and D. M. Kroeger, **Applied Physics Letters**, 67, 294, 1995.
  309. "Percolative Current Paths in High- $J_c$  Bi-2223 Powder-in-tube Tapes", A. Goyal, E. D. Specht, D. M. Kroeger, T. A. Mason, D. J. Dingley, G. N. Riley Jr. and M. W. Rupich, **Appl. Phys. Lett.**, 66 (1995) 1.
  310. "Effect of Texture on Grain Boundary Misorientation Distributions in Polycrystalline High Temperature Superconductors", A. Goyal, E. D. Specht, D. M. Kroeger, and T. A. Mason, **Appl. Phys. Lett.**, 68 (1995) 711.
  311. "Crystallization of "Colonies" of Locally Aligned Grains During Thallination of Spray-Pyrolyzed Tl-1223", A. Goyal, E. D. Specht and D. M. Kroeger, **Appl. Phys. Lett.**, 67 (1995) 1.
  312. "Fabrication, Processing and Superconducting Properties of Tl-1223 Powder-in-tube Conductors" A. Goyal, M. Paranthaman and D. M. Kroeger, **IEEE Transactions in Applied Superconductivity**, vol. 5, pg. 1405, 1995.
  313. "Studies on Superplastically Deformed 123/Ag Composites", A. Goyal, Z. L. Wang, D. M. Kroeger and Y. T. Chou, **IEEE Transactions in Applied Superconductivity**, vol. 5, pg. 1452, 1995.
  314. "Formation of Colonies of Locally Aligned grains During Thallination of Spray-pyrolyzed  $Ba_2Ca_2Cu_3O_x$  Thick Films" A. Goyal, E. D. Specht and D. M. Kroeger, **IEEE Transactions in Applied Superconductivity**, vol. 5, pg 1950, 1995.
  315. "Formation of Anisotropic Tl-1223, 2223 and 2212 particles using Aerosol Flow Reacted Particles" M. Paranthaman, A. Goyal and D. M. Kroeger, **IEEE Transactions in Applied Superconductivity**, vol. 5, pg 1490, 1995.
  316. "Microtexture and Mesotexture in High- $J_c$  Bi-2223", A. Goyal, E. D. Specht, D. M. Kroeger, T. A. Mason, D. J. Dingley and G. N. Riley, **J. of Electronic Materials**, 24 (1995) 1865. "Effect of the Colony Microstructure on the Transport Critical Current Density of high- $J_c$  Tl-1223 Thick Films", **Proceedings of the 1995 International Workshop on Superconductivity co-sponsored by ISTE and MRS**, June 18-21, 1995, Maui, USA, pg. 453.
  317. "Paths for Current Flow in Polycrystalline High Temperature Superconductors, D. M. Kroeger, A. Goyal and E. D. Specht, **Proceedings of the 1995 International Workshop on Superconductivity co-sponsored by ISTE and MRS**, June 18-21, 1995, Maui, USA, pg 217.
  318. "Superconducting Transport Properties of Tl-1223 Deposits on Polycrystalline Substrates", D. K. Christen, Q. He, M. Paranthaman, C. E. Klabunde, R. Feenstra, A. Goyal, F. A. List, D. M. Kroeger, J. E. Tkaczyk, J. A. Deluca, Z. F. Ren, C. A. Wang and J. H. Wang, **Proceedings of the 1995 International Workshop on Superconductivity co-sponsored by ISTE and MRS**, June 18-21, 1995, Maui, USA, pg 383.
  319. "Texture and Transport in Spray-pyrolyzed Tl-1223 thick Films, J. E. Tkaczyk, J. A. Sutliff, J. A. Deluca, P. J. Bednarczyk, C. L. Briant, Z. L. Wang, A. Goyal and D. M. Kroeger, D. H. Lowndes and E. D. Specht, **J. Mater. Res.**, 10 (1995) 1.
  320. "The Effect of Colonies of Aligned Grains on Critical Current in High temperature Superconductors", E. D. Specht, A. Goyal and D. M. Kroeger, J. A. Deluca, J. E. Tkaczyk, C. L. Briant and J. A. Sutliff, **Physica C**, 242 (1995) 164.
  321. "Strong and Weak Link Behavior of Single Grain Boundaries in Melt Textured Bulk Ag Doped  $YBa_2Cu_3O_x$ ", C. Sarma, G. Schindler, C. C. Koch, A. I. Kingon and A. Goyal, **Physica C**, 244 (1995) 287.
  322. "Microstructural Evolution of a Silver Containing Spray-Pyrolyzed 1223 Tl-Ca-Ba-

- Cu-Oxide Superconductor, C. L. Briant, J. A. Deluca, P. L. Karas, M. F. Garbaskas, J. A. Sutliff, A. Goyal and D. M. Kroeger, **J. Mater. Res.**, 10 (1995) 823.
323. "2D and 3D Percolation in High-Temperature Superconductors", E. D. Specht, A. Goyal and D. M. Kroeger, **Phys. Rev. B**, 53, pgs. 3585-3589, 1995.
324. "Microdiffraction Measurements of the Effects of Grain Alignment on Critical Current in High Temperature Superconductors", **NSLS Annual Report**, E. D. Specht and A. Goyal, 1995.
325. "Progress Towards Bulk Application of High-Tc Superconductors", A. Goyal, **J. of Minerals, Metals and Materials**, Pg. 55, August, 1995.
326. "Dependence of Critical Current Density on Microstructure in High Temperature Superconductors", A. Goyal, D. M. Kroeger, E. D. Specht and Z. L. Wang, **J. of Electronic Materials**, 23 (1994) 1191.
327. "A New Process to Texture Y123", V. Selvamanickam, A. Goyal and D. M. Kroeger, **J. of Electronic Materials**, 23 (1994) 1169.
328. "A New Process to Texture YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Superconductor", V. Selvamanickam, A. Goyal and D. M. Kroeger, Published as proceedings of 1994 Applied Superconductivity Conference, Oct 16-21, 1994, Boston, MA, in **IEEE Transactions**.
329. "Local Texture and Grain Boundary Misorientations in High J<sub>c</sub> Oxide Superconductors, D. M. Kroeger, A. Goyal, E. D. Specht, J. E. Tkaczyk, J. Sutliff, J. A. Deluca, G. N. Riley Jr., and L. Masur, **J. of Superconductivity**, 1995.
330. "Processing/Microstructure Control for High Strength, Ductility, and Toughness at Room Temperature in P/M FeAl", P. J. Maziasz, V. Sikka, D. J. Alexander, A. Goyal and J. W. Wright, published in the **Proceedings of the 1996 Spring TMS Meeting**, Anaheim, CA, Feb 2-6, 1996.
331. "Local Texture and Percolative Paths for Long-Range Current Conduction in High Critical Current Density TlBa<sub>2</sub>Ca<sub>2</sub>Cu<sub>3</sub>O<sub>8+x</sub> Deposits", D. M. Kroeger, A. Goyal, E. D. Specht, Z. L. Wang, J. E. Tkaczyk, J. A. Sutliff and J. A. Deluca, **Appl. Phys. Lett.**, 64 (1994) 106-108.
332. "Evidence for local texture in Spray-Pyrolyzed Tl-1223 Thick Films", E. D. Specht, A. Goyal, D. M. Kroeger, C. L. Briant, J. A. Deluca, J. A. Sutliff and J. E. Thaczyk, **Physica C**, 226 (1994) 76-84.
333. "Effect of Thermal Annealing on Grain Boundary Chemistry of Polycrystalline TlBa<sub>2</sub>Ca<sub>2</sub>Cu<sub>3</sub>O<sub>8+x</sub> Films", Z. L. Wang, C. L. Briant, J. Deluca, A. Goyal, D. M. Kroeger, J. A. Sutliff, E. D. Specht and J. E. Thaczyk, published in the **Proceedings of the Microscopy Society of America**, July 31-Aug 5, 1994, New Orleans, LA.
334. "The Path for Long Range Conduction in High J<sub>c</sub> TlBa<sub>2</sub>Ca<sub>2</sub>Cu<sub>3</sub>O<sub>8+x</sub> Deposits", D. M. Kroeger, A. Goyal, E. D. Specht, Z. L. Wang, J. E. Thaczyk, J. A. Sutliff and J. A. Deluca, **Proceedings of the 1993 TMS Fall Meeting**, Oct. 17-21, Pittsburgh, PA, edited by U. Balachandran, E. W. Collings and A. Goyal.
335. "Progress in the Development of the Silver Addition Process for Preparing Textured "1223" Tl-Ca-Ba-Cu-O Thick Films", J. A. Deluca, P. L. Karas, C. L. Briant, J. E. Thaczyk and A. Goyal, **Proceedings of the 1993 TMS Fall Meeting**, Oct. 17-21, Pittsburgh, PA, edited by U. Balachandran, E. W. Collings and A. Goyal.
336. "Long Range Conduction in High J<sub>c</sub> TlBa<sub>2</sub>Ca<sub>2</sub>Cu<sub>3</sub>O<sub>8+x</sub> Deposits", D. M. Kroeger, A. Goyal, E. D. Specht, Z. L. Wang, J. E. Thaczyk, J. A. Sutliff and J. A. Deluca, **Proceedings of the 1993 TcSUH Meeting**, Dec. 5-6, Houston, TX.
337. "A New Process to Texture YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> Superconductor", V. Selvamanickam, A. Goyal and D. M. Kroeger, **Appl. Phys. Lett.**, 65 (1994) 639.
338. "Advances in Processing of High-T<sub>c</sub> Superconductors for Bulk Applications", A. Goyal, **J. of Minerals, Metals and Materials**, pg. 14-20, December, 1994.
339. "Models for Long-range Current Flow in Bulk Oxide Superconductors", A. Goyal and D. M. Kroeger, **J. of Minerals, Metals and Materials**, pg. 11, December, 1994.
340. "Microstructures and Flux-pinning in Melt-processed 123", Z. L. Wang, A. Goyal, R. Kontra and D. M. Kroeger, **Materials Science Forum**, 129 (1993) 1-16.
341. "Interface and Grain Boundary Chemical Structures in YBaCuO materials", Z. L.

- Wang, R. Kontra, A. Goyal, D. M. Kroeger and R. K. Williams, Special Issue of "Interface Science" on **Interfaces in High-Temperature Superconductors**, edited by S. E. Babcock and K. L. Merkle, vol 1, 321-338, 1994.
342. "Microdiffraction Measurements of Correlation's in Grain Orientation in High Current, High temperature Superconductors", E. D. Specht, A. Goyal, D. M. Kroeger, Z. L. Wang, J. E. Tkaczyk and J. A. Deluca, **NLSL Annual Report**, 1993.
343. "Flux-creep studies in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ," Y. R. Sun, J. R. Thompson, D. K. Christen, Y. J. Chen, J. G. Ossandon, F. Holtzberg, A. D. Marwick and A. Goyal, High Temp. Supercond., **Proc. 3rd Beijing Int. Conf.**, eds: Z. Gan, S. S. Xie and Z. X. Zhao, p609, 1993.
344. "Critical Currents and Microstructures in Oxide Superconductors," D. M. Kroeger and A. Goyal, **J of Metals**, p. 42-46, Oct. 1992.
345. "Stacking Faults Associated with 211 Particles and other Likely Pinning Centers in Melt-processed  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ," A. Goyal, Z. L. Wang, K. B. Alexander and D. M. Kroeger, Published in the Proceedings of the **International Workshop on Superconductivity**, June 23-26, 1992, Honolulu, Hawaii, U. S. A.
346. "Microstructure and Growth of Melt-textured  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ," K. B. Alexander, A. Goyal, D. M. Kroeger, S. Selvamanikam, **Physical Review B**, 45 (1992) 5622.
347. "Fabrication of Highly Aligned  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ -Ag Composites," A. Goyal, P. D. Funkenbusch, D. M. Kroeger, and S. J. Burns, **Physica C**, 182 (1992) 203.
348. "Hardness and Fracture Toughness of Highly Aligned  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ," A. Goyal, P. D. Funkenbusch, D. M. Kroeger, and S. J. Burns, **J. of Applied Physics**, 71 (1992) 2363.
349. "Mechanical Properties of Highly Aligned  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ : Effect of  $\text{Y}_2\text{BaCuO}_5$  Particles," A. Goyal, P. D. Funkenbusch, D. M. Kroeger, and S. J. Burns, **Physica C**, 183 (1992) 221.
350. "Solidification of  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  From the Melt" A. Goyal, K. B. Alexander, D. M. Kroeger, P. D. Funkenbusch, and S. J. Burns, **Physica C**, 210 (1993) 197.
351. "Structural and Chemical Disorder near the 211/123 Interface and its possible relation to the Flux-pinning behavior in Melt-textured  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ," Z. L. Wang, A. Goyal, and D. M. Kroeger, **Physical Review B**, 47 (1992) 5373.
352. "Substrate Reactions and Flux-pinning Structures in Melt-processed  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  Deposits on Ag-Pd Substrates", D. M. Kroeger, A. Goyal, Z. L. Wang, and F. A. List, Published in the **Proceedings of the 1992  $T_c$  SUH Workshop on HTS Materials**, February 27-28, Houston, Texas.
353. "Effects of Field Sweep Rate on the Magnetization in High- $T_c$  Superconductor Materials", Yang Ren Sun, J. R. Thompson, D. K. Christen, J. G. Ossandon, Y. J. Chen and A. Goyal, **Physical Review B**, 46 (1992) 8480.
354. "Strong Evidence for Vortex Glass/Collective Pinning Theory in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ", Yang Ren Sun, J. R. Thompson, Y. J. Chen, D. K. Christen, and A. Goyal, **Physical Review B**, 47 (1993) 14481.
355. "Defects near the  $\text{Y}_2\text{BaCuO}_x/\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  Interface and its effect on Flux-pinning in Melt-processed and Quench-Melt-Growth Processed  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ ", Z. L. Wang, A. Goyal, D. M. Kroeger and T. M. Armstrong, Published in the **Proceedings of the 1992 Spring MRS Meeting**, San Francisco, CA.
356. "Flux-pinning Structures in Melt-processed  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  ", D. M. Kroeger, Z. L. Wang and A. Goyal, Published in the **Proceedings of the 5th US/Japan Workshop on High- $T_c$  Superconductors**, Tokyo, Japan, Nov 9-10, 1992.
357. "The Production and Properties of Melt-Zone Textured  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  Filaments", D.K. Christen, C. E. Klabunde, M. J. Neal, M. V. Parish, D. B. Chandler, B. C. Chakoumakos, A. Goyal and D. M. Kroeger, Published in the **Proceedings of the International Workshop on Superconductivity**, June 23-26, 1992, Honolulu, Hawaii, U. S. A.
358. "Interface Microstructures in Melt-textured 123 on Ag-Pd and Flux-pinning centers introduced by 211 particles," Z. L. Wang, A. Goyal and D. M. Kroeger, proceedings of the **50th Annual Meeting of the Electron Microscopy Society of America**, held

in Boston, MA, August, 1992.

- 359.**"Effect of Ag/Ag<sub>2</sub>O Additions on the Resistive Behavior of Polycrystalline YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> in the Low Temperature Sintering Regime," A. Goyal, S. J. Burns, and P. D. Funkenbusch, **Physica C**, 168 (1990), 405.
- 360.**"Crystallographic Thermal Expansion Coefficient and Elasticity Across the Superconducting Transition in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub>," S. J. Burns, A. Goyal, and P. D. Funkenbusch, **Physical Review B**, 39 (1989) 11457.
- 361.**"Discontinuity of the Isothermal Elastic Compliances Across the Superconducting Transition in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub>," A. Goyal, S. J. Burns, S. Gracewski, and P. D. Funkenbusch, **Physica C**, 159 (1989) 313.
- 362.**"The Effect of Ag/Ag<sub>2</sub>O Doping on the Low Temperature Sintering of Superconducting Composites," A. Goyal, S. J. Burns, and P. D. Funkenbusch, **Superconductivity and its Applications**, edited by H. S. Kwok and D. T. Shaw, Elsevier Science, 1989.
- 363.**"Young's Modulus Measurement of Polycrystalline YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub>," G. C. S. Chang, S. J. Burns, A. Goyal, and P. D. Funkenbusch, **Ceramic Superconductors II**, edited by Man F. Yan, American Ceramic Society, 1988, pp 580.
- 364.**"Superconducting Cermets," A. Goyal, P. D. Funkenbusch, and S. J. Burns, **Superconductivity and its Applications**, edited by H. S. Kwok and D. T. Shaw, Elsevier Science, 1988.
- 365.**"Isostructural Phase Transition in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> with the Onset of Superconductivity," S. J. Burns, A. Goyal, and P. D. Funkenbusch, **Scripta Metallurgica**, 22 (1988) 1129.
- 366.**"Critical Point Phase Transformations Applied to Ceramic Superconductors," S. J. Burns, A. Goyal, and P. D. Funkenbusch, **Superconductivity and its Applications**, edited by H. S. Kwok and D. T. Shaw, Elsevier Science, 1988.
- 367.**"Cermets of the Phase Superconductor," A. Goyal, P. D. Funkenbusch, G. C. S. Chang, and S. J. Burns, **Materials Letters**, 6 (1988) 257.