

<p><b>Patents- Summary</b></p>	<ul style="list-style-type: none"> <li>• <b>Over 150 patent applications and/or invention disclosures filed.</b></li> <li>• <b><u>88 issued patents</u></b> (70 US and 18 International patents).</li> <li>• <b><u>70 US patents issued to date:</u></b> US Patent Nos. 5, 739, 086; 5, 741, 377; 5, 846, 912; 5, 898, 020; 5, 964, 966; 5, 958, 599; 5, 968, 877; 6, 077, 344; 6, 106, 615; 6, 114, 287; 6, 150, 034; 6, 156, 376; 6, 151, 610; 6, 159, 610; 6, 180, 570; 6, 235, 402; 6, 261, 704; 6, 270, 908; 6, 331. 199; 6,375,768; 6, 399, 154; 6, 451, 450; 6, 447, 714; 6, 440, 211; 6, 468, 591, 6, 486, 100; 6, 599, 346; 6, 602, 313, 6, 607, 313; 6, 607, 838; 6, 607, 839; 6, 610, 413; 6, 610, 414; 6, 635, 097; 6, 645, 313; 6, 663, 976; 6, 670, 308; 6, 675, 229; 6, 716, 795; 6, 740, 421; 6, 764, 770; 6, 784, 139; 6, 790, 253; 6, 797, 030; 6, 846, 344; 6, 782, 988; 6, 890, 369; 6, 902, 600; 7, 087, 113; 7, 258, 928; 7, 510 997; 7, 683, 010; 7, 879 161; 7, 906, 229; 7, 919, 435; 8, 034, 745; 8, 119, 571; 8, 178, 221; 8, 210, 420; 8, 227, 082; 8,424,745; 8,481,460; 8, 518, 526; 8, 536, 098; 8, 685, 549; 8, 748, 349; 8, 748, 350; 8, 795, 854; 8, 987, 736, 8, 993, 092.</li> <li>• <b><u>18 international patents issued to date:</u></b> Australian Patent No. 8349510, Australian Patent No. 713982, Canadian Patent No. 2,217,822, Japanese Patent No. 03601830, European Region Patent No. EP 0830218, South Korea Patent No. 418279, Switzerland Patent No. 0830218, Germany Patent No. 0830218, Spain Patent No. 0830218, France Patent No. 0830218, Great Britain Patent No. 0830218, Italy Patent No. 0830218, Sweden Patent No. 0830218, Hong Kong Patent HK 1150093, Chinese Patent CN101981699, Chinese Patent CN1132585 and Indian Patent 310761.</li> <li>• <i>A majority of these issued patents have been licensed during the course of the last two decades.</i></li> <li>• <b><i>Over 5 US patents presently pending.</i></b></li> <li>• <b><i>Over 5 International patents pending.</i></b></li> <li>• This is the <i>highest</i> number of issued US patents for any employee in the Battelle system (<a href="http://www.battelle.org/careers/battelle/about.stm">http://www.battelle.org/careers/battelle/about.stm</a>). Battelle serves the U.S. Department of Energy in the management of four leading-edge national laboratories – Oak Ridge National Laboratory (ORNL), Pacific Northwest National Laboratory (PNNL), Brookhaven National Laboratory (BNL) and National Renewable Energy Laboratory (NREL).</li> </ul>
<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</li> </ul>

	<p>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/09maySTHTSGoya/">http://sciencewatch.com/ana/st/hts/09maySTHTSGoya/</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.</p>
<p><b>Patents / Invention disclosures</b></p>	<ol style="list-style-type: none"> <li>1. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same - I". <u>US Patent No. 5, 739, 086</u>, April 14, 1998.</li> <li>2. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same - II". <u>US Patent No. 5, 741, 377</u>, April 21, 1998.</li> <li>3. V. Selvamanikam, A. Goyal and D. M. Kroeger, "Method of Preparing Y-123 by Melt Processing", <u>US Patent No. 5, 846, 912</u>, December 8, 1998.</li> <li>4. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same - III". <u>US Patent No. 5, 898, 020</u>, April 27, 1999.</li> <li>5. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same - IV". <u>US Patent No. 5, 958, 599</u>, September 28, 1999.</li> <li>6. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same". <u>Australian Patent No. 713892</u>.</li> <li>7. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same". <u>European Umbrella Patent No. EP 0830218</u>.</li> <li>8. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same". <u>Korean Patent No. 418279</u>.</li> <li>9. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same". <u>Japanese Patent No. 03601830</u>.</li> <li>10. A. Goyal, J. D. Budai, D. M. Kroeger, D. P. Norton, E. D. Specht and D. K. Christen, "Structures Having Enhanced Biaxial Texture and Method to Fabricating Same". <u>Canadian Patent No. 2,217,822</u>.</li> <li>11. A. Goyal, E. Specht, D. Kroeger and M. Paranthaman, "Method of Forming Biaxially Textured Alloy Substrates and Devices Thereon - I," <u>US Patent 5, 964, 966</u>, October 12, 1999.        Patent application was a combination of five inventions listed below:       <ol style="list-style-type: none"> <li>a. A. Goyal and D. M. Kroeger, "Method of Forming Biaxially Textured Articles Having Reduced Magnetism," ORNL/LMER Docket ERID No. 366.</li> <li>b. A. Goyal, D. M. Kroeger and M. Paranthaman, "Method of Forming Biaxially Textured Articles Having Reduced Magnetism," ORNL/LMER Docket ERID No. 367.</li> <li>c. A. Goyal, "Method of Forming Biaxially Textured Articles," ORNL/LMER Docket ERID No. 368.</li> <li>d. A. Goyal, E. D. Specht and D. M. Kroeger "Method of Forming Biaxially Textured Articles," ORNL/LMER Docket ERID No. 199.</li> <li>e. A. Goyal and D. M. Kroeger, "Method of Forming Biaxially Textured Articles," ORNL/LMER Docket ERID No. 363.</li> </ol> </li> <li>12. J. D. Budai, D. K. Christen, A. Goyal, Q. He, D. M. Kroeger, D. F., Lee, D. P. Norton, B. C. Sales and E. D. Specht, "High-T<sub>c</sub> YBCO Superconductor Deposited on Biaxially Textured Ni Substrate," <u>US Patent 5, 968, 877</u>, October 19, 1999.</li> <li>13. S.S. Shoup, M. Paranthaman, D.B. Beach, D.M. Kroeger, and A. Goyal, "Methods of Sol-gel Deposition of Buffer Layers on Biaxially Textured Ni Substrates," <u>US Patent 6, 077, 344</u>, June 20, 2000.</li> </ol>

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  48. A. Goyal, R. Williams and D. M. Kroeger, "Biaxially Textured Articles Formed by Powder Metallurgy," US Patent 6,790,253, September 14, 2004.
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63. A. Goyal, "Superconductor films with improved flux pinning and reduced AC losses," [US Patent 7,919,435](#), April 5, 2011.
64. A. Goyal, "High performance devices enabled by epitaxial, preferentially oriented, nanodots and/or nanorods," [US Patent 8,034,745](#), October 11, 2011.
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