RAYMOND A. CUTLER
CIRRICULUM VITAE

EDUCATION

B.A.	Chemistry, University of Utah. 1976
M.S.	Materials Science and Engineering, University of Utah 1977
Ph.D.	Materials Science and Engineering, University of Utah 1984

PROFESSIONAL ASSOCIATIONS

American Ceramic Society

HONORS

Student's Choice Teaching Award 2007 for College of Engineering
College of Engineering 2010 Teaching Award

WORK EXPERIENCE

2016-present	Chief Technical Officer, Life-E
1984 to 2013	Research Scientist, Ceramatec, Inc.
1991-1993	Visiting Scientist, Elkem Research Center
1979 to 1984	Ceramic Engineer, Terra Tek, Inc.
1977 to 1979	Ceramic Engineer, Fansteel Research Center

OTHER ACTIVITIES

2013 to 2016	President, Wisconsin Milwaukee Mission, The Church of Jesus Christ of Latter-Day Saints
2016-present 2004 to 2013	Adjunct Professor, University of Utah Department of Materials Science and Engineering
1995 to 2004	Adjunct Associate Professor, University of Utah Department of Materials Science and Engineering
1996 to 2013	Associate Editor, Journal of American Ceramic Society

INVITED TALKS

Korea Advanced Institute of Science and Technology (Seoul, Korea), University of Trondheim (Trondheim, Norway), Tsukuba Science City (Ibaraki, Japan), University of Illinois (Urbana, IL), Swedish Ceramic Society (Gothenburg, Sweden), University of Oslo (Oslo, Norway), and University of Utah (Salt Lake City, UT)

PUBLICATIONS

1. R. A. Cutler, A. H. Jones, S. R. Swanson, and H. B. Carroll, "New Proppants for Deep Gas Well Stimulation," SPE Paper 9869, Proceedings of 1981 SPE/DOE Symposium on Low Permeability Formations, Society of Petroleum Engineers, 379-90 (1981).

2. R. A. Cutler and W. C. Leslie, "Effects of Temperature on the Fracture Toughness of Carburizing Steels for High Temperature Applications," *Journal of Testing and Evaluation*, **11** [1], 3-15 (1983).

3. R. A. Cutler, D. O. Enniss, A. H. Jones and H. B. Carroll, "Comparison of the Fracture Conductivity of Commercially Available and Experimental Proppants at Intermediate and High Closure Stresses," SPE Paper 11634, Proceedings of 1983 SPE/DOE Symposium on Low Permeability Formations, Society of Petroleum Engineers, 305-18 (1983).

4. S. R. Swanson and R. A. Cutler "Fracture Analysis of Ceramic Proppants," *J. Energy Resources Technology*, **105** [2], 128-133 (1983).

5. J. R. Tingle, C. A. Shumaker, D. P. Jones and R. A. Cutler, "The Effect of Binder Chemistry on the Fracture Toughness of Cemented Tungsten Carbides," Chevron-Notched Specimens: Testing and Stress Analysis, ASTM STP 855, edited by J. H. Underwood, S. W. Frieman and F. I. Baratta (American Society for Testing Materials, Philadelphia, 281-296, 1984).

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7. R. A. Cutler and A. V. Virkar, "The Effect of Binder Thickness and Residual Stresses on the Fracture Toughness of Cemented Carbides," *J. Mater. Sci*. **20**, 3557-3573 (1985).

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10. A. V. Virkar, J. L. Huang, and R. A. Cutler, "Strengthening of Oxide Ceramics by Transformation Induced Stresses," *J. Am. Ceram. Soc*., **70**[3], 164-170 (1987).

11. R. A. Cutler, J. J. Hansen, A. V. Virkar, D. K. Shetty and R. C. Winterton, "Strength Improvement in Transformation-Toughened Ceramics Using Compressive Residual Surface Stresses," pp. 155-163 in Advanced Structural Ceramics, Vol. 78, Edited by P. F. Becher, M. V. Swain and S. Somiya (Materials Research Society, Pittsburgh, PA., 1987).

12. R. A. Cutler, J. D. Bright, A. V. Virkar and D. K. Shetty, "Strength Improvement in Transformation-Toughened Alumina by Selective Phase Transformation," *J. Am. Ceram. Soc*., **70**[10], 714-718 (1987).

13. A. V. Virkar, J. F. Jue, J. J. Hansen, and R. A. Cutler, "Measurement of Residual Stresses in Oxide-ZrO_2 Three-Layer Composites," *J. Am. Ceram. Soc*., **71**[3], C-148-C-151 (1988).

14. R. A. Cutler, A. C. Hurford and A. V. Virkar, "Pressureless Sintered Al_2O_3-TiC Composites," Science of Hard Materials, Vol. 3, Edited by V. K. Sarin (Elsevier, London and New York, 183-192, 1988).

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16. K. Stuffle, R. A. Cutler, A. Nagar, D. K. Shetty and A. V. Virkar, "A Microcircuit Grid Technique for Crack Length Measurement in Fatigue Tests at Elevated Temperatures," pp. 714-720 in Proc. VI International Congress on Experimental Mechanics, (Soc. Exp. Mech., Bethel, CT., June 1988).

17. J. J. Hansen, R. A. Cutler, D. K. Shetty and A. V. Virkar, "Indentation Fracture Response and Damage Resistance of Al_2O_3-ZrO_2 Composites Strengthened by Transformation-Induced Residual Stresses," *J. Am. Ceram. Soc*., **71**[12], C-501-C-505 (1988).

18. T. B. Jackson, A. C. Hurford, S. L. Bruner and R. A. Cutler, "SiC-Based Ceramics with Improved Strength," Silicon Carbide '87, Edited by J. D. Cawley and C. E. Semler (Am. Ceram. Soc., Columbus, OH. 227-240, 1989).

19. K. M. Rigtrup and R. A. Cutler, "Synthesis of Submicron Silicon Carbide Powder," Silicon Carbide '87, Edited by J. D. Cawley and C. E. Semler (Am. Ceram. Soc., Columbus, OH., 17-33, 1989).

20. R. A. Cutler and T. B. Jackson, "Liquid Phase Sintered Silicon Carbide," Ceramic Materials & Components for Engines, Ed. by V. J. Tennery (Am. Ceram. Soc., Westerville, OH., 309-318, 1989).

21. A. V. Virkar, T. B. Jackson and R. A. Cutler, "Thermodynamic and Kinetic Effects of Oxygen Removal on the Thermal Conductivity of Aluminum Nitride," *J. Am. Ceram. Soc*., **72**[11], 2031-2042 (1989).

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24. R. A. Cutler, R. J. Mayhew, K. M. Prettyman and A. V. Virkar, "High Toughness Ce-TZP Ceramics with Improved Hardness and Strength," *J. Am. Ceram. Soc*., **74**[1], 179-86 (1991).

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70. M. L. Whittaker, H. Y. Sohn, and R. A. Cutler, "Oxidation Kinetics of Aluminum Diboride," *J. Solid St. Chem*., **207** 163-169 (2013).

71. M. Sygnatowicz, R. A. Cutler, and D. K. Shetty, "Processing of Dense ζ-Ta_4C_{3-x} by Reaction Sintering of Ta and TaC Powder Mixture," *J. Am. Ceram. Soc.,* **97**[12] 3826-34 (2014).

72. M. Sygnatowicz, R. A. Cutler, and D. K. Shetty, "ζ-Ta_4C_{3-x}: A High Fracture Toughness Carbide with Rising-Crack-Growth (R-Curve) Behavior," *J. Am. Ceram. Soc.,* **98**[8] 2601-08 (2015).

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PATENTS

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2. R. A. Cutler, "Dense, Fine-Grained Tungsten Carbide Ceramics and a Method for Making the Same," U. S. Patent 4,828,584 (May 9, 1989).

3. R. A. Cutler, A. C. Hurford, and A. V. Virkar, "Liquid-Phase Sintering of Silicon Carbide," U. S. Patent 4,829,027 (May 9, 1989).

4. A. V. Virkar, R. A. Cutler, P. A. Lessing, and J. L. Huang, "Dense Ceramics Containing a Solid Solution and Method for Making the Same," Canadian Patent 1,256,126 (June 20, 1989).

5. R. A. Cutler and A. V. Virkar, "Fine-Grained Ceramics and Method for Making the Same," U. S. Patent 4,891,341 (January 2, 1990).

6. R. L. K. Matsumoto, A. V. Virkar, and R. A. Cutler, "Ceramics with High Toughness, Strength and Hardness," U. S. Patent 5,002,911 (March 26, 1991).

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