Raymond Cutler

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OBJECTIVE

Contribute to the growth and profitability of an organization by solving problems and mentoring young professionals

EXPERIENCE

CERAMATEC, INC. | 1984—2013

- Invented ceramic-ceramic joining technique for a wide variety of materials
- Doubled the magnetocaloric performance of silicides for use in a magnetic refrigeration device
- Developed fluorite and perovskite ceramics for use in oxygen separation membranes
- Engineered porous and dense layers to allow cosintering in multilayer microchannel devices
- Demonstrated how additives affect the sintering kinetics and fracture toughness of SiC
- Invented a presureless-sintered SiC with high fracture toughness
- Developed borides and silicides for use in a variety of energetic applications
- Developed binderless WC made by presureless sintering and HIPing
- Developed liquid phase sintering of SiC
- Demonstrated damage-resistant ceramics using layered composites
- Demonstrated presureless sintering of Al_2O_3-TiC ceramic cutting tools

ADJUNCT PROFESSOR, UNIVERSITY OF UTAH | 1996—2013

- Taught materials science and materials characterization to over 1500 undergraduate students
- Mentored students as their advisor for senior theses and maters theses on a variety of topics

ELKEM RESEARCH CENTER (NORWAY) | 1991—1993

- Developed and processed a wide variety of erosion-resistant ceramic materials for use in North Sea oil applications

TERRA TEK, INC. | 1979—1983

- Developed lightweight ceramic proppants for deep gas well stimulation
- Characterized fracture toughness of cemented carbides relative to binder chemistry

FANSTEEL RESEARCH CENTER | 1977—1979

- Developed Al_2O_3-TiC poweder synthesis by exothermic reactions for ceramic cutting tools

EDUCATION

Ph.D. | Materials Science and Engineering
University of Utah 1984

M.S. | Materials Science and Engineering
University of Utah 1977

B.A. | Chemistry
University of Utah 1976

HONORS

- Student's choice teaching award (University of Utah, 2007)
- College of Engineering teaching award (University of Utah, 2010)
- Author of over 70 peer reviewed scientific articles
- 17 patents

SKILLS

- Research and developement
- Materials characterization
- Teaching and mentoring
- Leadership and vision
- Materials processing
- Problem solving
- Communication
- Innovation

TOOLS

- XRD
- SEM/EDS
- K_{Ic}, Hv, σ_f, κ
- TGA/DTA/DSC

VOLUNTEER

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

Leadership and Vision
Wisconsin Milwaukee Mission, President | 2013—2016

- Directed, trained, and taught over 500 full-time volunteer missionaries serving for the Church of Jesus Christ of Latter-day Saints in Wisconsin and Michigan.

SELECTED PUBLICATIONS

- **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).
- **R. A. Cutler**, ``Engineering Properties of Borides,'' Engineered Materials Handbook, Vol. 4: Ceramics and Glasses, ed. by C. A. Dostal, (ASM, Materials Park, OH pp. 787-803 1991).
- T. B. Jackson, A. V. Virkar, K. L. More, R. B. Dinwiddie, and **R. A. Cutler**, ``High Thermal Conductivity AlN Ceramics: The Effect of Thermodynamic, Kinetic, and Microstructural Factors,'' J. Am. Ceram. Soc., 80[6], 1421-35 (1997).
- M. Flinders, D. Ray, A. Anderson, and **R. A. Cutler**, ``High-Toughness Silicon Carbide as Armor,'' J. Am. Ceram. Soc., 88[8], 2217-26 (2005).
- K. N. Hutchings, J. Bai, **R. A. Cutler**, M. A. Wilson, and D. L. Taylor, ``Electrochemical Oxygen Compression Using Planar, Cos-intered Ceramics,'' Solid State Ionics, 179, 442-450 (2008).
- M. L. Whittaker and **R. A. Cutler**, ``Effect of Synthesis Atmosphere, Wetting, and Compaction on the Purity of AlB_2,'' J. Solid St. Chem., 201 93-100 (2013).

REFERENCES

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