

Christopher A. Brown, Ph.D., P.E.
Professor of Mechanical Engineering

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Personal: U.S. Citizen

Registration: Professional Engineer, State of Vermont, March 1991, number 6071

Education:

B.A., Political Science, 1975, The University of Vermont

M.S., Mechanical Engineering, 1979, The University of Vermont

Thesis: A Toughness Test for Non-Standard Specimens

Ph.D., Mechanical Engineering, 1983, The University of Vermont

Dissertation: Material Behavior During Chip Formation

Languages: English and French

Memberships and Offices Held in Professional Societies:

American Society of Mechanical Engineers (ASME)

- Fellow, elected October 19, 2005

- Standards Committee B-46, Classification and Designation of Surface Qualities, member

- Chair of SC 9, subcommittee on Fractal Methods

- Vice-chair B46 2008-present

Society of Manufacturing Engineers (SME)

- Advance Publication Technology task force 2006

- International Director (elected 2001-2005)

- Journals Committee (appointed 2000-2005)

- Machining Technology Association, Board of Advisors (elected) 1996-2000, chair 1998

- Principles and Practice, Test Specifications Committee, October 2000

Haas Technical Education Center Council

- founding president 2001-2004

American Society for Testing and Materials

CIRP (International Academy for Production Engineering) corresponding member 1997 - present

- Technical secretary STC-S 1992-1998 (scientific/technical committee on Surfaces)

ASM International, a Materials Society

- Founding member, European Council 1986-1989

International Society for Skiing Safety

Work Experience

Worcester Polytechnic Institute, Mechanical Engineering Department, Worcester, Massachusetts

Saint-Gobain Professor July 2001-June 2004, Professor of Mechanical Engineering to present

Associate Professor 1993-2001, tenured 1995, Assistant Professor 1989-1993

- Director, Manufacturing Engineering Program (February 2000-June 2004)

- Founder and Director, Surface Metrology Laboratory

- Founder and Director of Haas Technical Center for Computer-controlled Machining

Surfract – Surface Engineering and Fractal Analysis

Head Engineer and President- Secured and directed \$94,000 SBIR Phase I from the NSF for the development of packing and tiling algorithms 1998

Dartmouth College, Thayer School of Engineering, Hanover, New Hampshire

Visiting Associate Professor and Lecturer 1996

CERAC S.A., Atlas Copco's Research Center, Ecublens, Switzerland

Materials Engineering Department, Senior Research Engineer, 1988-1989

Swiss Federal Institute of Technology, Lausanne, Switzerland, Department of Materials, Mechanical

Metallurgical Laboratory, Assistant, 1983-1984, Scientific collaborator, 1984-1988

University of Vermont, Department of Orthopaedics & Rehabilitation, Laboratory Technician, 1982-83

- developed system for generating direction cosine matrixes for vertebrae orientation

University of Vermont, Mechanical Engineering Department, Laboratory Technician, 1979-82

- analyzed special problems in metal cutting

Consulting (selected)

Kneebinding, ski binding test design
Line skis, ski binding design and development
Sulzer Innotec, Switzerland, on surface roughness analysis
3M Company, on texture characterization
Abbott Labs, on texture characterization
Kodak, on texture characterization
Quantum Corp., on texture characterization and education
Analog Devices, on texture characterization
General Motors, on texture characterization
Xerox, on texture characterization
Honeywell, on texture characterization
Expert in liability and patent litigation
Jacquet Orthopaedie, Switzerland, machining of bone, design of external fixateurs
American Saw and Manufacturing Company, on blade testing and design
Hilti AG, Schaan, Liechtenstein, on machining forces

Civic, Cultural and Religious Contributions

Selectman, Town of Hinesburg, Vermont, 1982; Congregational Board, Scots Kirk, Lausanne 1985-1988
Ski race official - various levels, from club races to NCAA championships, 1976-2003

Other Jobs and Experience

Ski Coaching: Quechee Alpine Ski Team, assistant coach, 1996-2000; Ski Clubs in Switzerland, 1986-1989
- Alaskan Ski Division Spring Camp, 1976-1982 (co-head coach, 1980-1982)
- Men's Alpine Coach, University of Vermont, 1975-1977 (Eastern Champions, third National Championships Division I), part of the longest regular season undefeated string in NCAA history
Concrete Form Carpenter, Ted McKay and Co., Stowe, Vermont, Summers 1971-1974

Athletics: University of Vermont Athletic Hall of Fame, 1989; Co-Captain, University of Vermont Ski Team, 1974
- Eastern Downhill Champion, 1973 & 1974; First Team All-American, 1973

Editorial and Referee Services – over 15 journals and conferences

Selected Fellowships, Grants and Support

Olympus, use of a LEXT 3100 scanning laser confocal microscope, \$168,000 list price
Supfina Machine Company, Special problems in abrasive finishing, graduate research, \$25,000
Computer Optics International, Surface Metrology of Germanium Domes, \$42,000
Kennametal, Inc. \$38,000 and \$45,000, tooling and tool wear measurement
Haas Automation and Lufkin Trust \$650,000 to institute and integrate CNC machining at WPI (2001)
Kodak \$12,500 unrestricted grant (1998)
3M \$20,000 unrestricted grant (1997-1998)
NSF, SBIR Phase I, Fractal Based Tiling and Packing in Surface Metrology \$94,350 (1998)
NASA, Analysis and Design of runway textures, \$193,518, (1994-1997)

U.S. Patent 5,307,292 April 26, 1994

Method of Quantifying the Topographic Structure of a Surface

Inventors: Christopher A. Brown, William A. Johnsen, Patrick D. Charles, Assignee: Christopher A. Brown

U.S. Patent Application US2009/0107210A1, Apr. 30, 2009

Portable Friction Testing Device

Inventors: William A. Arnold, Chenghsiung Lin, Christopher A. Brown, Torbjorn S. Bergstrom, Douglas J. Geiger

Publications and presentations: over 100 technical publications, and over 100 technical presentations at professional meetings