

# John W. Daily

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**Department of Mechanical Engineering**  
**University of Colorado at Boulder**  
**Boulder, CO 80309-0427**  
**(303) 492-7110; (303) 492-2863 FAX**  
**john.daily@colorado.edu**  
**<http://spot.colorado.edu/~daily>**

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**498 Blue Lake Trail**  
**Lafayette, CO 80026**  
**(303) 247-1633**  
**Cell (303) 775-9576**

## **Education:**

- University of Michigan, B.S.M.E., 1968
- University of Michigan, M.S.M.E., 1969
- Stanford University, Ph.D., 1975

## **Registration:**

- Registered Professional Engineer, State of California.

## **Present Positions:**

- Professor of Mechanical Engineering
- Director, Center for Combustion and Environmental Research

## **Previous Positions:**

- Chair of Mechanical Engineering, 1999-2000
- Chair, Boulder Faculty Assembly, 1997-1999
- Director, Undergraduate Environmental Engineering Program, 1996-1999
- Professor and Chair, Department of Mechanical Engineering, University of Colorado at Boulder, 1990-1995
- Professor and Director, Center for Combustion Research, Mechanical Engineering Department, University of Colorado, Boulder, 1988-1990
- Associate Professor, Mechanical Engineering Department, University of California, Berkeley, 1981-1988
- Assistant Professor, Mechanical Engineering Department, University of California, Berkeley, 1975-1981
- Research Assistant, High Temperature Gas Dynamics Laboratory, Stanford University, 1971-1975
- Heat Transfer Analyst, Aerojet Liquid Rocket Company, Sacramento, CA, 1970-1971
- Research Assistant, Automotive Laboratory, University of Michigan, 1966-1969
- Self-Employed Sports and Racing Car Service, Ann Arbor, Michigan, 1965-1966
- Sports and Racing Car Mechanic, Competition Associates, Cambridge, Massachusetts, 1963-1965
- Engineers Aide, Maguire Associates, Boston, Massachusetts, 1961
- Research Assistant, Civil Engineering Computer Lab, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1960-1962

## **Professional and Honor Societies:**

- American Institute of Aeronautics and Astronautics (Associate Fellow)

- The Optical Society of America
- The Combustion Institute
- American Society of Mechanical Engineers (past member)
- Pi Tau Sigma (Honorary Member)
- Sigma Xi (past member)
- The American Association for the Advancement of Science (past member)
- The American Society of Engineering Education (past member)
- Air and Waste Management Association (past member)

### **Fields of Interest:**

- *Scientific* - Combustion, Fluid Mechanics, Heat Transfer, Advanced Instrumentation
- *Technology* - Propulsion, Hazardous Waste, Air Pollution, Instrumentation, Microsystems

### **Teaching Experience:**

- Elementary and Advanced Thermodynamics
- Methods of Experimentation and Measurement
- Combustion
- Energy and Power
- Heat Transfer
- High Temperature Thermodynamics
- Optical Diagnostics in Gases
- Direct Energy Conversion
- Design

### **University Service:**

#### **University of California**

- Department Instrumentation Curriculum Committee (1975-1977)
- Department Undergraduate Curriculum Committee (1975-1978)
- Department Laboratory Equipment and Computers Committee (1975-1988)
- College Research Committee (1976-1978)
- College Energy and Resources Committee (1978-1983)
- Department Search Committee for Automatic Controls (1981-1982)
- Department Policy Committee (1981-1983)
- Energy and Resources Group Affiliated Faculty (1981-1988)
- Department Teaching Effectiveness and Evaluation Committee, Chair (1981-1984)
- Energy and Resources Group Admissions Committee (1982-1983)
- Department Seminar Committee (1985-1988)
- Department Industrial Liaison and Alumni Relations Committee (1986-1988), Chair (1987-1988)
- Department Ad-Hoc Fluid Mechanics Committee (1986-1987)

#### **University of Colorado**

- College Industrial Associates Committee (Chair 1988-1992)
- Participant Engineering Development Council Retreat September (1988)
- Department Undergraduate Committee (1988-89)

- Department Graduate Committee (1988-90, Chair 89/90)
- Dean's First Level Promotion and Tenure Review Committee (1989-90)
- Organizer of Mechanical Engineering/Aerospace Engineering Sciences Joint Retreat (1989)
- Department Personnel Committee (1989-Present, Chair 1990-1995, 1999-2000)
- Department Executive Committee (1989-Present, Chair 1990-1995, 1999-2000)
- College Asia Initiative Committee (1990-1992)
- President's Committee on Environmental Studies and Global Change (1990-1993)
- Engineering Administrative Council (1990-Present)
- Group Leader 1991-1996 College Strategic Planning Effort (1991)
- Department Industrial and Alumni Relations Committees (Chair 1991-1995)
- University Writing Program Advisory Committee (1992-Present)
- President's Phase II Sub-Committee on Systems for Managing Information (1992-1995)
- Pursuit of Excellence Task Force, Chair (1993-1995)
- Demming Professorship Search Committee (1993-1994)
- Interim Chancellor Search Committee (1994)
- Organized Department Planning Retreat (1994)
- Search Committee for Director Entrepreneurship Center (1994-1995)
- Colorado Commission on Higher Education Faculty Productivity Committee (1994-1995)
- Boulder Faculty Assembly Budget Committee (1994-Present), Chair (1996-1998)
- Buffalo Futures Commission Subgroup on Academic Planning (1994-1995)
- Academic Planning Committee Budget and Finance Working Group (1995-1996)
- Dean's First Level Promotion and Tenure Review Committee (1995-1997)
- Chancellor's Budget Advisory Committee (1995-1999)
- Academic Affairs Budget Advisory Committee (1996-1999)
- Chair, Boulder Faculty Assembly (1997-1999) (In this capacity I chaired or sat on many committees and planning groups.)
- University of Colorado Faculty Council (1995-2000)
- Benefits Oversight Committee (1999)
- Secretary, University of Colorado Faculty Council (1999-2000)
- Campus Executive Committee (1997-1999)
- Strategic Capitol Assessment Group (1998-1999)
- Dean's First Level Promotion and Tenure Review Committee (2003-Present)

## **Service to Professional Organizations:**

### **Referee of Manuscripts and Proposals:**

**Manuscript reviewer** for Applied Optics, The AIAA Journal, Combustion and Flame, Combustion Science and Technology, Progress in Energy and Combustion Science (I am also a member of the Editorial Board of this journal), AIAA Journal of Propulsion and Power, ASME Meetings, AIAA Aerospace Science Meetings, ASME Journal of Heat Transfer, Symposium (International) on Combustion meetings, Western States Section/Combustion Institute Meetings (Program Chair 1983-1991), Journal of Space and Rockets, Journal of Quantitative Spectroscopy and Radiative Transfer, ASME Fluids Engineering Journal

**Proposal Reviewer** for The National Science Foundation, The Air Force Office of Scientific Research, The Office of Naval Research, The Department of Energy, California Air Resources Board, Army Research Laboratory, Natural Science and Engineering Research Council of

Canada, Air Force Rocket Propulsion Laboratory, Petroleum Research Fund, National Research Council, Gas Research Institute

### **Professional Committees or Boards**

- Mt Diablo Section of the AIAA, Vice Chair (1975) Chair (1976)
- American Institute of Aeronautics and Astronautics Propellants and Combustion Technical Committee (1978-1980, 1987-1993) Chair (1990-1993)
- Advisory Council Bay Area Air Quality Management District (1978-1987), Secretary (1983-84), Vice Chair (1984-85), Chair (1985-86)
- California State Board of Forestry Best Management Practices Silviculture Advisory Committee (1979-1981)
- Member of the Program Committee Symposium (International) on Combustion (1980-1992)
- Member Editorial Board, Progress in Energy and Combustion Science (1982-Present)
- Combustion Institute/Western States Section Papers Chairman and Member of the Board of Directors (1983-1991)
- National Research Council, Naval Research Board, Panel on Research Opportunities in Energy Conversion (1987)
- National Science Foundation Engineering Research Centers Review Panel (1987)
- JANNAF Workshop on Liquid Rocket Engine Instability (1989-1992)
- National Science Foundation Research Initiation Grants Review Panel (1990)
- Office of Naval Research, Panel to Review Accelerated Research Initiatives (1991)
- Colorado Hazardous Waste Commission, Member (1992-Present), Chair (1992-1993, 1997-2003)
- American Institute of Aeronautics and Astronautics Education Committee (1991-Present), Chair (1996-2003)
- National Research Council, Naval Research Board, Panel on Research Opportunities in Energy Conversion (1994)
- National Research Council, AFOSR Program Review Panel (1995)
- Combustion Institute/Western States Section Board of Directors (1998-Present)
- Program Chair, Meeting on Laser Applications to Chemical and Environmental Analysis to be held in 2002, Optical Society of America (2000-2002)
- American Institute of Aeronautics and Astronautics Publication Committee (2003-Present), Chair
- State of Colorado Air Quality Control Commission (2003-2006)

### **Other**

- Organizer of Working Group Meeting for the Department of Energy Lean Homogeneous Charge Automotive Combustion Project (1980)
- Member of the Program Committee AIAA Aerospace Science Meeting (1980)
- Session Organizer for the 1980 Symposium (International) on Combustion
- Member of the Program Committee AIAA Aerospace Science Meeting (1980)
- Founder of Biennial Gordon Research Conference on Chemistry and Physics of Laser Diagnostics in Combustion (1981)
- Session Organizer AIAA Aerospace Science Meeting (1981)
- Special Session Organizer 9th International Colloquium on the Gasdynamics of Explosions and Reacting Systems (1983)
- Outside reviewer for Programs in Combustion and Chemical Engineering at Louisiana State University (1986)

- Program Organizer for the 4th International Congress on Toxic Combustion Byproducts held June 1995
- Organizing Committee for the International Colloquium on the Dynamics of Explosions and Reacting Systems held in Boulder July 1995
- Organizing Committee, International Symposium on Combustion held at CU July 1998 (1990-1998).

### **Service to the Community:**

- California Trout Board of Governors (1972-1988)
- Concord Pleasant Hill Swim Team Board (1981-1982)
- Stepfamily Association of America East Bay Area Chapter, President (1983-1986)
- Berkeley Minor Hockey Club, Coach (1983-1988)
- Boy Scouts Troop 7, Treasurer (1985-1987)
- All Souls Episcopal Church Vestry (1986-1988)
- American Cancer Society Volunteer (1988-1990)
- St. Johns Episcopal Church Vestry (1991-1993)
- St. Johns Episcopal Church Outreach Committee (1993-1999, Chair 1993-1996)
- Boulder Offroad Alliance (Member of Board 2000-Present)

### **Awards:**

- Ralph R. Teetor Educational Award, Society of Automotive Engineers (1987)
- Senior Member, American Institute of Aeronautics and Astronautics (1992)
- Associate Fellow, American Institute of Aeronautics and Astronautics (1993)
- Max S. Peters Faculty Service Award, College of Engineering and Applied Science, University of Colorado at Boulder (1996)
- Recipient of a Deutscher Akademischer Austauschdienst Study Grant (1996)
- Boulder Faculty Assembly Service Award (1999)
- Recipient of a Deutscher Akademischer Austauschdienst Study Grant (2003)

## **Publications:**

Professor Daily has over one-hundred and fifty publications and has given over two hundred conference presentations and technical seminars since receiving his Ph.D. A complete list is available upon request. The following is a sample of recent refereed publications.

- Li-Anne Liew, R. A. Saravanan, Victor M. Bright, Martin L. Dunn, John W. Daily and Rishi Raj, "Processing and characterization of silicon carbon-nitride ceramics: application of electrical properties towards MEMS thermal actuators, Sensors and Actuators A 103, 171-181 (2003).
- Brown A.L., B.R. Hames, J. W. Daily, "Chemical analysis of solids and pyrolytic vapors from wildland trees, Energy and Fuel 17, 1022-1027 (2003).
- Wilcox, B.P., E.T.H. Chrysostom, A. McIlroy, J.W. Daily and I.M. Kennedy, "Measurement of CrO in flames by cavity ringdown spectroscopy," Applied Physics B 77, 535-540 (2003).
- Coen, J. L., S. Mahalingam, and J. W. Daily, "Infrared imagery of crown-fire dynamics during FROSTFIRE," J. Appl. Meteor. 43(9), 1241-1259 (2004).
- Daily, J.W., W.G. Bessler, C.Schulz, V. Sick, and T.B. Settersten, "Nonstationary Collisional Dynamics in Determining Nitric Oxide Laser-Induced Fluorescence Spectra," AIAA Journal 43, 458-464 (2005).
- Daily, J.W., and J. Nabity, "Molecular Dynamics Simulation of Ion Emission from Nanodroplets of Ionic Liquids," Presented at the American Association for Aerosol Research 24th Annual Conference, Austin, TX 17-21 October 2005.
- "An Electrostatically Actuated MEMS Fuel Injector to Enhance Low-Pressure Atomization ," James Nabity, Sean Rooney, John Daily, Eric Johnson and Jean Hertzberg, AIAA Aerospace Sciences Meeting, Paper AIAA 2006-804, 9-12 January, 2006.
- "Effect of Multi-Mode Dye Laser Structure on excitation Dynamics in LIF Diagnostics," J.W. Daily, Spring Meeting Western States Section/Combustion Institute, Paper 06S-12, March 27-28, 2006,
- "Molecular Modeling for Thermodynamic Properties," John W. Daily, Mark Jarvis and David Dayton, Spring Meeting Western States Section/Combustion Institute, Paper 06S-29, March 27-29, 2006.
- "Pyrolysis of 2-Phenethyl Phenyl Ether," Mark Jarvis, David Dayton and John W. Daily, Spring Meeting Western State Section/Combustion Institute, Paper 06S-03, March 27-29, 2006.
- "Experimental study of MEMS colloid thrusters," J. Nabity, J. Daily and D. Kassooy, AIAA Joint Propulsion Conference, Sacramento, CA, Paper AIAA-2006-5007, 9-12 July, 2006.
- Thomas B. Settersten, Brian D. Patterson, Helmut Kronemayer, Volker Sick, Christof Schulz and John W. Daily, "Branching ratios for quenching of nitric oxide  $A\ 2\Sigma^+(\nu = 0)$  to  $X\ 2\Pi(\nu' = 0)$ ," Physical Chemistry Chemical Physics 8, 5328, 2006.