



Colwell Consulting  
8777 N. Gainey Center Drive,  
Suite 178  
Scottsdale, AZ 85258  
Telephone/480 257 7221

## Daniel Lieberman, Ph.D., P.E. Managing Engineer

Dr. Daniel Lieberman is a Managing Engineer at Colwell Consulting specializing in mechanical engineering and the analysis of thermal and flow processes. Dr. Lieberman applies his expertise to the investigation and prevention of failures in mechanical and electrical systems. He also conducts origin and cause investigations of fires and explosions. His research focuses on combustion, as well as fundamental issues involving fluid dynamics, heat transfer, and thermodynamic processes.

Dr. Lieberman has investigated a broad range of equipment failure and damages caused by blast waves and other impulsive loading including water hammer and supersonic flight. Dr. Lieberman has carried out research on synthetic gas production, oil and gas hazards, and industrial furnace operations, as well as fire origin and cause analyses in over 50 residential and industrial structures. Dr. Lieberman also has extensive experience with experimentation, flow visualization techniques, and pressure and temperature instrumentation.

Prior to joining Colwell Consulting Dr. Lieberman was a Managing Engineer at Exponent where he worked for 8 years. Dr. Lieberman has also held positions in the Explosion Dynamics Laboratory at the California Institute of Technology and as a part-time faculty member in the Aerospace and Mechanical Engineering department at the University of Southern California and at École des Métiers de l'Aérospatiale de Montréal – an aerospace trade school.

### Education

Ph.D., Aeronautics, California Institute of Technology  
M.S., Aeronautics, California Institute of Technology  
B.Eng., Mechanical Engineering, McGill University (*honors*), Montreal, Canada

### Licenses and Certifications

Registered Professional Mechanical Engineer, California, #M34477  
Hazardous Waste Operations and Emergency Response training (29 CFR 1910.120)



## Professional Honors

Member Technical Committee on Explosives, NFPA 495 *Explosive Materials Code*, National Fire Protection Association

National Fire Protection Association (member)

The William F. Ballhaus Prize—Outstanding doctoral dissertation, Caltech, 2006; National Science and Engineering Research Council, NSERC (Canada) Postgraduate scholarship, 2000, 2001; Fonds de Recherche sur la Nature et les Technology (Canada) Postgraduate scholarship, 2000, 2001; Donald Wills Douglas Fellowship, 2000; NSERC undergraduate summer research scholarship, 1999; J.W. McConnell Award, 1998; Clifford Wong Scholarship, 1998; Dean's Honor List, McGill University, 1998, 1999; Golden Key National Honors Society member

## Publications

Krauss D, Lieberman DH, Grossman H, Ray R, Scher I. (2008) An evaluation of perceptual experience of skiers using quantitative image processing. *Journal of ASTM International*, 2008, 5(4).

Lieberman DH, Shepherd JE. (2007) Detonation interaction with a diffuse interface and subsequent chemical reaction. *Shock Waves*, 2007 16(6):421–429.

Lieberman DH, Shepherd JE. (2007) Detonation interaction with an interface. *Physics of Fluids*, 2007 19, 096101.

Lieberman DH. (2005) Detonation refraction at sharp and diffuse interfaces. Ph.D. thesis, California Institute of Technology, Pasadena, CA, November 2005.

## Presentations and Published Abstracts

Lieberman DH, Tang S. (2010) Analysis of a bowstring truss roof collapse by a sonic boom. 4<sup>th</sup> International Conference on Engineering Failure Analysis, Cambridge, England, July 2010.

Lieberman DH. (2005) Shock wave induced mixing and reaction. 20<sup>th</sup> International Colloquium on the Dynamics of Explosions and Reactive Systems, Montreal QC, August 2005.

Lieberman DH. (2005) Characterization of a corona discharge initiator using detonation tube impulse measurements. 43<sup>rd</sup> AIAA Aerospace Sciences Meeting, Reno, NV, January 2005.

Lieberman DH, Singh S, Shepherd JE. (2003) Combustion behind shock waves. Combustion Institute, Western States Section, Los Angeles, CA, October 2003.



Lieberman DH. (2002) Detonation initiation by hot turbulent jet for use in pulse detonation engines. 38<sup>th</sup> AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Indianapolis, IN, July 2002.

Lieberman DH. (2001) Photographic study of the transition between the quasi-detonation and choking regimes. 18<sup>th</sup> International Colloquium on the Dynamics of Explosions and Reactive Systems, Seattle WA, July 2001.

#### Invited Presentations

Lieberman DH. (2007) Engineering consulting—For mechanical engineers. Presented at the University of Southern California Viterbi School of Engineering, Los Angeles, CA, November 28, 2007.

Lieberman DH. (2008) Explosion investigations and failure analysis. Presented at the University of Southern California Viterbi School of Engineering, Los Angeles, CA, November 3, 2008.

#### Peer Reviewer

- *Shock Waves*
- *Combustion Science and Technology*
- *Fuel—The Science and Technology of Fuel and Energy*
- *SAE International*

