

Dr. Daniel Lieberman is a Sr. Consultant at ESI and specializes 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 Colwell Consulting. Dr. Lieberman was previously 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.

Licenses & Certifications

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

Publications

An evaluation of perceptual experience of skiers using quantitative image processing.

Krauss D, Lieberman DH, Grossman H, Ray R, Scher I. (2008), Journal of ASTM International, 2008, 5(4).

Detonation interaction with a diffuse interface and subsequent chemical reaction.

Lieberman DH, Shepherd JE. (2007), Shock Waves, 2007 16(6):421–429.

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Education

Ph.D., Aeronautics, California
Institute of Technology

M.S., Aeronautics, California Institute
of Technology

B.Eng., Mechanical Engineering,
McGill University (honors), Montreal,
Canada

Detonation interaction with an interface.

Lieberman DH, Shepherd JE. (2007), Physics of Fluids, 2007 19, 096101.

Detonation refraction at sharp and diffuse interfaces.

Lieberman DH. (2005), Ph.D. thesis, California Institute of Technology, Pasadena, CA, November 2005.

Presentations**Analysis of a bowstring truss roof collapse by a sonic boom.**

Lieberman DH, Tang S. (2010), 4th International Conference on Engineering Failure Analysis, Cambridge, England, July 2010.

Shock wave induced mixing and reaction.

Lieberman DH. (2005), 20th International Colloquium on the Dynamics of Explosions and Reactive Systems, Montreal QC, August 2005.

Characterization of a corona discharge initiator using detonation tube impulse measurements.

Lieberman DH. (2005), 43rd AIAA Aerospace Sciences Meeting, Reno, NV, January 2005.

Combustion behind shock waves.

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

Detonation initiation by hot turbulent jet for use in pulse detonation engines.

Lieberman DH. (2002), 38th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Indianapolis, IN, July 2002.

Photographic study of the transition between the quasi-detonation and choking regimes.

Lieberman DH. (2001) 18th International Colloquium on the Dynamics of Explosions and Reactive Systems, Seattle WA, July 2001.

Engineering consulting—For mechanical engineers.

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

Explosion investigations and failure analysis.

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

Professional Affiliations/Honors

National Fire Protection Association

- Member Technical Committee on Explosives, NFPA 495 Explosive Materials Code
- Member

Caltech

- The William F. Ballhaus Prize – Outstanding doctoral dissertation, Caltech, 2006

Scholarships

- National Science and Engineering Research Council, NSERC (Canada) Postgraduate scholarship, 2000, 2001
- Donald Wills Douglas Fellowship, 2000; NSERC undergraduate summer research scholarship, 1999
- Fonds de Recherche sur la Nature et les Technology (Canada) Postgraduate scholarship, 2000, 2001
- Clifford Wong Scholarship, 1998

Awards

- J.W. McConnell Award, 1998
- Dean's Honor List, McGill University, 1998, 1999

Golden Key National Honors Society

- Member

Peer Reviewer

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