

Scott I. Lieberman, Ph.D., P.E., LEED AP
Senior Engineer

Professional Profile

Dr. Scott I. Lieberman is a Senior Engineer in Exponent's Materials and Corrosion Engineering practice. Dr. Lieberman specializes in failure analysis, microstructural characterization, and processing of metals and composites. He has experience in the automotive, aeronautical, electronics, fire protection, green building, consumer products, and medical device industries. He has specific expertise with optical and scanning electron microscopy, metallography, conventional and powder metallurgy, composite materials, fractography, and development of microstructural simulations to help solve difficult problems for his clients.

Prior to joining Exponent, Dr. Lieberman was a graduate research assistant at the Georgia Institute of Technology, where he investigated the processing-microstructure-properties relationships of Ti-B composites and modified alloys, high-pressure die-cast magnesium alloys, and aluminum alloys using conventional and newly developed techniques for materials characterization and microstructural design.

Dr. Lieberman serves as an Adjunct Professor for the Mechanical Engineering Department at Santa Clara University, where he teaches a graduate-level materials characterization course.

Academic Credentials and Professional Honors

Ph.D., Materials Science and Engineering, Georgia Institute of Technology, 2007
M.Sc., Composite Materials, Imperial College of Science, Technology and Medicine, 2001
B.S., Materials Science and Engineering, Massachusetts Institute of Technology, 2000

Georgia Tech President's Fellowship
Atlanta Chapter of ASM International Graduate Student Award, 2005, 2006
MIT Ilona Karmel Writing Awards, First Prize, Writing & Humanistic Studies Prize for
Engineering Writing, 1999

Licenses and Certifications

Registered Professional Metallurgical Engineer, California, #MT1954

U.S. Green Building Council, Leadership in Energy and Environmental Design Accredited
Professional, LEED AP, 2009

Publications

James BA, Lieberman SI. Analysis of a brake cylinder failure. *Journal of Failure Analysis and Prevention* 2011; 11:193–196.

James B, McVeigh C, Rosenbloom S, Guyer E, Lieberman S. Ultrasonic cleaning-induced failures in medical devices. *Journal of Failure Analysis and Prevention* 2010; 10(3):223–227.

Lieberman SI, Gokhale AM, Tamirisakandala S, Bhat RB. Three-dimensional microstructural characterization of discontinuously reinforced Ti64–TiB composites produced via blended elemental powder metallurgy. *Materials Characterization* 2009; 60:957–963.

Singh H, Gokhale AM, Sreeranganathan A, Mao Y, Lieberman SI, Tamirisakandala S. Computer simulations of “realistic” partially anisotropic microstructures statistically similar to real microstructures. *Computational Materials Science* 2009; 44:1050–1055.

Singh H, Gokhale AM, Lieberman SI, Tamirisakandala S. Image based computations of lineal path probability distributions for microstructure representation. *Materials Science and Engineering A* 2008; 474:104–111.

Lieberman SI, Gokhale AM, Tamirisakandala S. Reconstruction of three-dimensional microstructures of TiB whiskers in powder processed Ti-6Al-4V-1B Alloys. *Materials Characterization* 2007; 58:527–533.

Sreeranganathan A, Lieberman SI, Singh H, Gokhale AM, Tamirisakandala S. Realistic micromechanical modeling and simulation of boron modified titanium alloys. *Proceedings, ABAQUS Users’ Conference*, pp. 546–548, Paris, France, 2007.

Lieberman SI. Microstructural characterization, visualization, and simulation of Ti-B materials. *Doctoral Dissertation*, Georgia Institute of Technology, 2007.

Lieberman SI, Singh H, Mao Y, Sreeranganathan A, Gokhale AM, Tamirisakandala S, Miracle DB. Characterization and simulation of microstructures of titanium alloys modified with boron. *JOM* 2007; 59:59–63. Invited paper.

Lieberman SI, Gokhale AM, Tamirisakandala S. Reconstruction of three-dimensional microstructures of TiB phase in a powder metallurgy titanium alloy using montage serial sectioning. *Scripta Materialia* 2006; 55:63–68. Invited paper.

Gokhale AM, Singh H, Lieberman SI, Tamirisakandala S. Simulations of microstructural geometry for materials design. *Proceedings, 12th International Conference on Plasticity and its Current Applications*, pp. 262–264, Baltimore, MD, 2006.

Mebane DS, Lieberman SI, Gokhale AM, Gerhardt RA. Bivariate stereological unfolding procedure for randomly oriented chopped fibers or whiskers. *Acta Materialia* 2005; 53:4943–4953.

Presentations and Published Abstracts

Lieberman SI. Fractography of Ti-B materials. PowderMet 2009, Las Vegas, NV, June 2009.

Lieberman SI. Development of materials design methodologies for boron-modified Ti-6Al-4V alloys. TMS Annual Meeting, Orlando, FL, February 2007.

Lieberman SI. Visualization, characterization, and simulation of microstructures of extruded boron-modified Ti-6Al-4V alloys with TiB reinforcement. Materials Science and Technology, Cincinnati, OH, October 2006.

Lieberman SI. Visualization of 3D microstructures reconstructed from serial sections in modified Ti-6Al-4V alloys with TiB whiskers. TMS Annual Meeting, San Antonio, TX, March 2006.

Lieberman SI. Computer simulations of realistic microstructures of Ti-TiB materials. MRS Fall Meeting, Boston, MA, November 2005.

Lieberman SI. Visualization of 3D microstructures reconstructed from serial sections in pre-alloyed Ti-6Al-4V-TiB. A Workshop on Titanium Alloys Modified with Boron, Dayton, OH, October 2005.

Lieberman SI. Tensile fractography of Ti-6Al-4V-TiB composite. Materials Science & Technology, Pittsburgh, PA, September 2005.

Lieberman SI. Montage-based serial sectioning to determine the spatial distribution of TiB whiskers in Ti-6Al-4V-TiB composite. Materials Science & Technology 2005, Pittsburgh, PA, September 2005.

Lieberman SI. First application of a novel stereological length-radius unfolding procedure to determine the three-dimensional bivariate size and shape distribution of TiB whiskers in Ti-6Al-4V-2.9B. TMS Annual Meeting, San Francisco, CA, February 2005.

Ng SJ, Claus SJ, Lieberman SI. Identifying Marcelling parameters of thick linear tapered laminates in a closed-mold curing process. 44th International SAMPE Symposium and Exhibition, pp. 167–173, Long Beach, CA, 1999.

Academic Appointments

Adjunct Professor, Department of Mechanical Engineering, Santa Clara University

Peer Reviewer

- Materials Characterization

Professional Affiliations

- TMS (member)
- MRS, AcerS (member)
- ASM International (member)