

**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Sonenblum, Sharon Eve		POSITION TITLE Research Engineer	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Brown University, Providence, RI	ScB	2002	Mechanical Engineering
Brown University, Providence, RI	ScM	2003	Bio-Engineering
Georgia Institute of Technology, Atlanta, GA	PhD	2009	Bio-Engineering

**A. Positions and Honors.****Positions and Employment**

6/99-8/99	Educational Outreach Programmer, Materials Research Science and Engineering Center, Brown University
6/00-8/03	Orthopedic Research Assistant, RIH Orthopedic Foundation & Brown University
6/01-8/01	Course Development Assistant, Department of Evolutionary Biology, Brown University
5/02-5/03	Assistant Coach, Brown University Varsity Fencing Team
9/03-8/05	Research Engineer I, Center for Assistive Technology and Environmental Access Georgia Institute of Technology Lead engineer on project, Effects of Specialized Wheelchair Technology on Participation, Activity and Medical Outcomes, NIDRR Rehabilitation Engineering Research Center on Wheeled Mobility in Everyday Life, with responsibilities including developing and maintaining the instrumentation and related methodology, data management and data analysis.
10/05-1/08	Bioengineering Graduate Student Advisory Committee Member Chair 10/06-1/08
1/07-5/07	Teaching assistant for BMED 3400 – Introduction to Biomechanics
8/05-8/09	National Science Foundation Graduate Research Fellow Maintaining lead engineer responsibilities described above while pursuing a degree in bio-engineering with a focus human movement, biomechanics and disability.
8/09-present	Research Engineer II, Rehabilitation Engineering and Applied Research Laboratory, Georgia Institute of Technology

**Honors**

2005-present	Georgia Institute of Technology Presidential Fellow
2005-present	National Science Foundation Graduate Research Fellow
2005-present	IGERT Scholar in the program on Hybrid Neural Microsystems: Integrating Neural Tissue and Engineering Systems
2002	Young Investigator's Award, Lifespan Hospital Research Celebration
2002	Mechanical Engineering "Most Outstanding Student in Department" Award
2002	Graduated Magna Cum Laude with Bachelor of Science in Mechanical Engineering
2002	Verizon Academic All-America District Team
2001-2002	Academic All-Ivy

## **Other Experience and Professional Memberships**

- Tau Beta Pi, Engineering Honor Society
- Sigma Xi, Scientific Research Society
- Manuscript Reviewer
  - Archives of Physical Medicine and Rehabilitation
  - IEEE Engineering in Medicine and Biology Conference
  - RESNA Annual Conference

## **B. Publications**

### **Selected Peer-Reviewed Publications**

1. Harris, F.H., S. Sprigle, and S.E. Sonenblum, *The Participation and Activity Measurement System (PAMS): an example application among people who use wheeled mobility devices*. Disability and Rehabilitation: Assistive Technology, In Press.
2. Maurer, C., S. Sprigle, and S.E. Sonenblum, *Load Redistribution in Variable Position Wheelchairs in People with SCI* Journal of Spinal Cord Medicine, In Press.
3. Sonenblum, S.E., S. Sprigle, and C. Maurer, *Use of Powered Tilt Systems in Everyday Life*. Disability and Rehabilitation: Assistive Technology, 2009. **4**(1): p. 24-30.
4. Sonenblum, S.E., et al., *Characterization of power wheelchair use in the home and community*. Arch Phys Med Rehabil, 2008. **89**(3): p. 486-91.
5. Upal, M.A., et al., *In vivo elongation of the palmar and dorsal scapholunate interosseous ligament*. J Hand Surg [Am], 2006. **31**(8): p. 1326-32.
6. Sonenblum, S.E., et al., *In vivo motion of the scaphotrapezio-trapezoidal (STT) joint*. J Biomech, 2004. **37**(5): p. 645-52.
7. Johnson, D.P., et al., *Flouride, Calcium and Phosphate Released from a Remineralizing Toothpaste*. Journal of Dental Research, 1999. **78**: p. 172.

### **Peer-Reviewed Conference Papers and Presentations**

1. Maurer, C., S. Sprigle, and S.E. Sonenblum, *Wheelchair Use in Everyday Life*, in RESNA Annual Meeting. 2009: New Orleans, LA. (Workshop)
2. Sonenblum, S.E., et al., *Why Full-time Power Wheelchair Users Tilt*, in RESNA Annual Meeting. 2008: Washington, DC. (Podium Presentation)
3. Harris, F.H., et al., *Impact of Tilt-in-Space Power Wheelchairs on Health, Activity, and Participation*, in RESNA Annual Meeting. 2008: Washington, DC. (Podium Presentation)
4. Sonenblum SE, Sprigle S, Harris FH, Maurer C. Understanding Wheelchair Use Patterns: Tilt-in-Space. 24th International Seating Symposium. Vancouver, BC; 2008. (Podium Presentation)
5. Harris FH, Sonenblum SE, Sprigle S. Measuring Participation Among Wheeled Mobility Users. European Seating Symposium. Dublin, Ireland; 2007. (Podium Presentation)
6. Harris FH, Sonenblum SE, Sprigle S. A Case Study: Activity and Participation Measurement in Two Subjects. RESNA Annual Meeting. Phoenix, AZ; 2007. (Poster Presentation)
7. Sonenblum SE. Daily Mobility Patterns in Power Wheelchair Users: What complexity measures can be used to describe mobility patterns?. Southeast Biomechanics Conference. Atlanta, GA; 2006. (Podium Presentation)
8. Sonenblum SE, Sprigle S, Maurer C. Monitoring Power Upright and Tilt-in-Space Wheelchair Use. RESNA Annual Meeting. Atlanta, GA; 2006. (Poster Presentation)
9. Harris FH, Sprigle S, Sonenblum SE. Measuring Activity and Participation in Outcomes Research. RESNA Annual Meeting. Atlanta, GA; 2006. (Workshop)
10. Sonenblum SE, Sprigle S, VanHeil L, Maurer C, Whittaker E. Kinematics of Lateral Transfers: A Pilot Study. International Society of Biomechanics. Cleveland, OH; 2005. (Podium Presentation)
11. Sonenblum SE, Sprigle S, West L, Wood J. Non-Invasive Erythema Detection Using Spectral Imaging. RESNA Annual Meeting. Atlanta, GA; 2005. (Poster Presentation)

12. Sonenblum SE, Sprigle S, VanHeil L, Maurer C. Kinematics of Lateral Transfers: A Pilot Study. RESNA Annual Meeting. Atlanta, GA; 2005. (Poster Presentation)
13. Lankton S, Sonenblum SE, Sprigle S, Wolf J, Oliveira M. Use of GPS and Sensor-based Instrumentation as a Supplement to Self-Report in Studies of Activity and Participation. RESNA Annual Meeting. Atlanta, GA; 2005. (Poster Presentation)
14. Sonenblum SE, Crisco JJ, Kang L, Akelman E. The scaphotrapezio-trapezoidal (STT) joint: an analysis of in-vivo STT motion in flexion, extension, and ulnar deviation. 49th Annual Meeting of the Orthopaedic Research Society. New Orleans, LA; 2003. (Poster Presentation)
15. Sonenblum SE, Crisco JJ, Kang L, Akelman E. The Scaphotrapezio-Trapezoidal (STT) Joint: An Analysis of In Vivo Motion in Flexion, Extension and Ulnar Deviation. Lifespan 10th Annual Research Celebration. Providence, RI; 2002. (Poster and Podium Presentations, award Young Investigator Award)
16. Crisco JJ, Kang L, Sonenblum SE, Akelman E. In vivo motion of the scaphotrapezio-trapezoidal (STT) joint. IV World Congress of Biomechanics. Calgary, Alberta; 2002. (Poster Presentation)
17. Sonenblum SE, Crisco JJ. Impact Characteristics of Coconut Coir. American Society of Biomechanics Annual Conference. San Diego, CA; 2001. (Poster Presentation)

## **C. Research Support**

### **Ongoing Research Support**

#### **NIDRR RERC for Wheeled Mobility; October 2008 – September 2013**

Georgia Institute of Technology, Sprigle, S (PI)

##### *Development of an Individualized Pressure Ulcer Susceptibility Model*

The specific aims of the project are to: 1) determine the quantitative relationship between pressure ulcer risk factors and the response of buttock tissue to loading in persons with SCI; 2) model the relationship between buttock tissue's response to loading and pressure ulcer development; and 3) create a clinically viable, individualized PU susceptibility model for persons with SCI.

*Role:* Co-investigator

##### *Pressure Relief Techniques and Behaviors*

The specific aims of the project are to: 1) determine the quantitative relationship between pressure ulcer risk factors and the response of buttock tissue to loading in persons with SCI; 2) model the relationship between buttock tissue's response to loading and pressure ulcer development; and 3) create a clinically viable, individualized PU susceptibility model for persons with SCI.

*Role:* Co-investigator

### **Completed Research Support**

#### **National Science Foundation Graduate Research Fellowship; August 2005 – July 2008**

#### **NIDRR RERC for Wheeled Mobility; November 2003 – October 2008**

H133E030035 at Georgia Institute of Technology, Sprigle, S (PI)

##### *Effects of specialized wheelchair technology on participation, activity and medical outcomes*

The specific aims of this project are: 1) to quantify differences in participation and activity when using specialized technology compared to traditional technology; 2) to determine if the use of specialized technology results in medical or health benefits compared to traditional technology; 3) perform an economic evaluation of the use of specialized technology.

*Role:* Co-investigator

Principal Investigator/Program Director (Last, First, Middle): PI Name:

*Kinematics of Lateral Transfers*

The goal of this study was to better understand the selected strategies and the kinematics of people with SCI who transfer independently.

*Role:* Co-investigator

**Georgia Tech Research Institute Internal Funding; 2003-2004, Sprigle, S (PI)**

*Development of a erythema & deep tissue injury detection device*

This project aims to develop a hand-held, affordable device used by clinicians to detect erythema, and bruises, especially in people with darkly pigmented skin. The pilot study conducted in this time frame tested a multi-spectral imaging technique's ability to highlight induced erythema in light- and dark-skinned able-bodied adults.

*Role:* Co-investigator