



# Puget Sound Human Factors and Ergonomics Society

March 2013

Winter Newsletter

[www.pshfes.org](http://www.pshfes.org)

## Renew Your Membership or Join Today!

Our chapter is a non-profit organization associated with the Human Factors and Ergonomics Society and serves the interests of the local community of the Pacific Northwest. Our funding is generated via the chapter's membership dues and activities.

For only \$18 (\$9 for students), you can enjoy opportunities for professional development, network with fellow professionals, and tour local facilities when you join PSHFES.

Additionally, receive newsletter and mail updates about what's going on in the area, volunteer opportunities, access to and a listing in the membership database, and an invitation to the yearly business meeting.

Join for the 2013 calendar year by visiting our Web site at [www.pshfes.org](http://www.pshfes.org), click "Membership," and pay online (PayPal) or by check.

## PSHFES President's Message



**Janet DeLapp**  
PSHFES President

PSHFES members and friends!

I am looking forward to being your President this coming year. During the last year as President Elect, I had an opportunity to work closely with our now Past President, Gary Davis. Gary has been great to work with, given many reasons but I especially want to thank him for his thoroughness, thoughtfulness and excellent leadership qualities. Thanks, Gary! I also want to give a very big thank you to Judy Damoff, who has been the Symposium Workshop Chair for the last two years. She has done a great job on lining up exceptional speakers and topics. Judy you will be missed. Thank you for your commitment and dedication.

This year the Council will be working hard to bring you educational opportunities throughout the year, as well as the annual Symposium and Workshop on September 18 & 19, 2013. Our keynote speaker will be William S. Marras, Ph.D., C.P.E., with the Department of Integrated Systems Engineering at Ohio State University. See inside this newsletter for more information.

We started the year off with a dinner meeting with Pete Johnson, MS, PhD on January 30<sup>th</sup>. This event, held at Hale's Ales in Seattle, was well attended. Dr. Johnson discussed his research on the effects of Whole Body Vibration during vehicle driving. There is more about this event within this newsletter. We just had a Kaizen tour at Genie Industries on February 26<sup>th</sup>. The even was hosted by Kelly Lynch and was well attended. We are also working on a tour to observe airport baggage handlers and a possible visit to Delta shipyards. If you have any ideas for dinner meetings or tours, please contact our Events Chair, Kurt Fellrath, at [program@pshfes.org](mailto:program@pshfes.org).

We plan to continue the Technically Cool Computing (TCC) project this year by adding a computer laptop ergonomics training module. To participate in TCC, contact Kim Popovic at [communityprojects@pshfes.org](mailto:communityprojects@pshfes.org).

# PSHFES President's Message Continued...

Besides working to provide you with educational opportunities, my focus will be to streamline some of the internal processes within PSHFES. We have already simplify the duties associated with the Treasurer position by hiring a Bookkeeper two hours per month and a Database Manager four hours per month. The financial records will be on QuickBooks and will be managed by the Bookkeeper and overseen by the Treasurer.

Now without further adieu, I would like to introduce the rest of the 2013 Council:

Past President - Gary Davis (also acting as Treasurer)  
President Elect / Secretary - OPEN  
Treasurer - OPEN  
Symposium/Workshop Chair - Cindy Williamson  
Program Events Chair - Kurt Fellrath  
Communications Chair - Kelly Lynch  
Community Projects Chair - Kim Popovic  
Newsletter Editor - Wilmarie Villanueva Sauveterre  
Student Liaison - Mark Von Weber

The Treasurer and President Elect/Secretary are open positions. If you are interested in either position, please contact me at [janet@solutionsnw.com](mailto:janet@solutionsnw.com) for more information.

*Janet DeLapp, MS, CDMS, CPE*  
*2013 PSHFES President*

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## Welcome New PSHFES Council Members!!!



**Mark Von Weber**  
**PSHFES Student Liaison**

Mark has over 20 years of Quality and EHS program expertise. He began his career in the United States Navy as a Strategic Weapons Officer during stand-up operations in the development and deployment of the Trident II Fleet Ballistic Missile Program. Upon leaving the Submarine Force after 10 years of service, he leveraged his project engineering and management background providing mission support for the private sector, the US DoD, and across the US DOE complex.

As an accomplished Lead Assessor, he has performed independent ISO 9001 quality management system evaluations for international registration firms. He has a Bachelor of Science degree in Mechanical Engineering from the United States Naval Academy, currently serves as an Alumni Examiner with the US Department of Commerce Baldrige Performance Excellence Program, and as Master Examiner with the American Health Care Association / National Center for Assisted Living.

# 2013 Kent Tech Expo

PSHFES again exhibited Technically Cool Computing (TCC) at the Kent Tech Expo on January 24, 2013. This event showcases how students gain college and career skills through classroom projects using various technology tools. Local businesses sponsor the event and exhibitors demonstrate the technology connection between classrooms and careers. A record of over 5,700 people attended this year's event! Judy Damoff, a Boeing employee and a PSHFES volunteer, and Kim Popovic, an ErgoFit Consulting, Inc. employee and 2011-2013 PSHFES Community Projects Chairperson, attended the event on behalf of PSHFES. Using computer equipment at the booth, we taught students, ranging in age from 6-18, on how to adjust their desktop or laptop computer to reduce awkward postures. We provided a handout with general tips, a picture of the "power pose", and information about TCC. Parents and children seemed interested and many voiced concern that they were seeing problems and that this education is important. We also met some employees from the Kent School District, which we hope will lead to greater computer ergonomics education in the future. For more information about TCC, visit [www.pshfes.org/tcc](http://www.pshfes.org/tcc).



*Kim Popovic, PT, Ergonomics Consultant*  
*PSHFES Community Projects Chairperson*  
[CommunityProjects@pshfes.org](mailto:CommunityProjects@pshfes.org) or [Kim@ErgoFitConsulting.com](mailto:Kim@ErgoFitConsulting.com)

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## PSHFES Genie Industries Tour

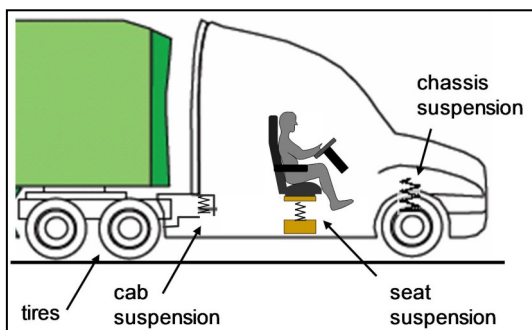
Puget Sound Human Factors and Ergonomics Society (PSHFES) had a tour of one of Genie Industries' AWP manufacturing plants on February 26th. The event was hosted by Kelly Lynch, an Ergonomist with Genie Industries and Communications Chair for PSHFES, as well as Derek Hohenstein, the TBS Manager, Brian Boynton, the HSE Manager, and Kathryn Hall, the HSE Director. Genie Industries is a division of Terex Corporation, a Fortune 500 company and the 3rd largest heavy construction equipment manufacturer. Genie is a world leader in the production of material lifts, portable aerial work platforms, scissor lifts, and self-propelled telescopic and articulated booms. Genie utilizes a version of the Toyota Production System. The event consisted of a tour of the production facility followed by a discussion of how ergonomics is applied to the continuous improvement (Kaizen) process. This was a great opportunity to benchmark and share best practices with fellow practitioners. It was a great learning experience and an excellent example of how the "continuous improvement" process involves all levels of the organization in the effort to improve worker safety and production.

*Kelly Lynch*  
*PSHFES Communications Chair*  
[communication@pshfes.org](mailto:communication@pshfes.org)

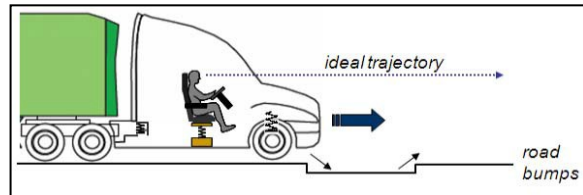
# PSHFES Dinner Meeting

On January 30<sup>th</sup> we had the privilege of hearing Dr. Peter Johnson speak to eighteen of our members regarding his research in whole body vibration. Dr. Johnson is an Associate Professor in the Occupational and Environmental Exposure Sciences program at the University of Washington. His specialty is ergonomics and he has performed experiments on a variety of topics. His research includes subjects such as: hazards of cell phone usage and exposure assessment system, for measuring physical risk factors, during computer use. A complete list of Dr. Johnson's research can be found at: <http://deohs.washington.edu/research-centers/faculty-directory-and-research-interests/peter-w-johnson>.

Dr. Johnson started the evening at Hale's Ales by defining whole body vibration (WBV): is the objective measure to define operator motion. The three axis z, x, and y are the motions Dr. Johnson is seeking to measure. The tool used to gather this data is an accelerometer; which measures both frequency and acceleration.



As a vehicle drives down the road there is consistent motion; the motion which impacts the human body the most is the upward and downward motion in the z axis. When a vehicle encounters a bumpy road, energy in the form of vibration travels from the tires through the suspension and into the seat of the operator (driver). All three of these factors affect WBV which in turn affects the health of the driver. Epidemiological studies have linked WBV to lower back pain. The consistent vibration of vehicle driving increases spinal disc compression forces which accumulate over time. WBV is a dose response relationship; the more you are exposed, the greater the accumulative stress.



Dr. Johnson has studied several different types of commercial vehicles; most recently King County Metro buses. Dr. Johnson focused his study on vehicle seats; the goal was to find a seat which best controlled z axis motion. Dr. Johnson found two major types of seat in the Metro Buses: the Mechanical seat and the Air-Ride seat. Mechanical seats are comprised of articulating joints and coil spring. Air-Rides seats use an all spring system; these seats are slightly more expensive.

King County Metro gave Dr. Johnson and his team several buses with the two styles of seats for study purposes. Dr. Johnson also installed and studied the popular European style fixed cylinder seat with no shock absorption (similar to an office chair). Dr. Johnson had each of the buses drive throughout Seattle on custom routes. The routes were chosen to ensure varied road conditions. Dr. Johnson's research found that the Mechanical and Air-Rides seats amplified WBV. These two seats' own shock absorption spring systems do and do not reduce WBV, depending on road conditions. On smooth terrain the spring seats work properly and reduce WBV. However on rough terrain the springs fail to reduce vibration causing the increase in WBV. The European fixed cylinder seats do not use springs. Subsequently they do not amplify WBV. However these seats are also influenced by road conditions.

In conclusion, there are many factors to take into consideration when reducing WBV. Dr. Johnson and his team believe seating technology is the key to further reduce WBV. Seating technology is still being developed to further reduce WBV. Dr. Johnson and his team certainly have given the King County valuable information they need to keep their employees healthy.

Kurt Fellrath  
PSHFES Programs Chair  
[program@pshfes.org](mailto:program@pshfes.org)

## Save These Dates: September 18th & 19th Puget Sound Human Factors & Ergonomics Society Symposium & Workshop



### Keynote Speaker

**William S. Marras, Ph.D., C.P.E.**

Honda Professor Chair  
Department of Integrated Systems Engineering  
The Ohio State University

William S. Marras holds the Honda Professor Chair in the Department of Integrated Systems Engineering at the Ohio State University. He serves as the director of the Biodynamics Laboratory and the Center for Occupational Health in Automobile Manufacturing, and he is executive director of the Institute for Ergonomics. Marras also holds joint appointments in the departments of orthopaedic surgery, physical medicine and rehabilitation, and biomedical engineering. His research is centered on musculoskeletal causal pathway investigations, including occupational biomechanical epidemiologic studies, laboratory biomechanics studies, mathematical modeling, and clinical studies of the back and spine.

His findings have been published in more than 200 peer-reviewed journal articles and numerous books and book chapters, including a recent book, *The Working Back: A Systems View*. He holds fellow status in five professional societies and has been widely recognized for his contributions through numerous national and international awards, including an honorary Sc.D. degree. Marras was the past chair of the board on human systems integration at the National Research Council, editor-in-chief of *Human Factors*, deputy editor of *Spine*, and has been elected to the National Academy of Engineering (the National Academies).

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## The PSHFES Mission Statement

- ◆ Provide opportunities for professional development, networking, workshops, and education for local Human Factors and Ergonomics professionals, students, and enthusiasts.
- ◆ Raise public awareness of the value and benefits of Human Factors and Ergonomics.
- ◆ Provide volunteer opportunities for HFE professionals to contribute to the Puget Sound area community.

# PSHFES Opportunities!!!

**Are you looking for an opportunity to get involved in the local ergonomics community?**

**Here is your chance!!!**

PSHFES is seeking candidates for the positions of Treasurer and President Elect. Here is your opportunity to be involved in the most robust and active HFES Local Chapter in the nation. For more information, contact Janet DeLapp at [president@pshfes.org](mailto:president@pshfes.org)

**Have you been looking for a way to give back to this organization and be more involved?**

If you are interested of becoming part of the PSHFES Council help is needed with the upcoming symposium. We especially need someone who is willing to take on the vendor portion of this event. If you are willing to help, please contact Cindy Williamson, [symposium@pshfes.org](mailto:symposium@pshfes.org).

**Have an idea for an article?**

We want to encourage all members to contribute ideas for articles and any items of interest for the next PSHFES Newsletter. For information or to submit content, please e-mail Wilmarie Villanueva at [newsletter-editor@pshfes.org](mailto:newsletter-editor@pshfes.org).

Thank you for all your continued support and contributions!



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