

University of Southern California

DANIEL J. EPSTEIN DEPARTMENT OF
INDUSTRIAL AND SYSTEMS ENGINEERING

EPSTEIN INSTITUTE SEMINAR • ISE 651 SEMINAR

***The Working Back: A Systems View of
Causation, Prevention and Control***

W.S. Marras

Honda Professor and Director, Biodynamics Laboratory
The Spine Research Institute
The Ohio State University

ABSTRACT

Low back disorders continue to be one of the most troublesome and costly health problems facing society today costing society nearly \$100 billion annual and resulting in nearly 100 million lost work days each year. However, the causal pathway associated with these disorders is poorly understood and clinical treatments for these disorders are often unsuccessful. While the literature cites physical work requirements, psychosocial influences, and hereditary factors as contributors to the low back pain, the mechanisms by which these factors increase risk has not been well understood. This talk will review research advances in our laboratory that have helped us understand how the physical, psychological, and organizational factors can influence causal pathway associated with low back disorders. This understanding has helped us develop person-specific models of the spine that have been used to prevent back problems at the worksite as well as help us understand the biomechanical implications of spine treatments and surgeries.

TUESDAY, OCTOBER 29, 2013
ELECTRICAL ENGINEERING BUILDING (EEB) ROOM 248
3:30 – 4:50 PM

SPEAKER BIO:

William S. Marras, Ph.D., CPE

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, the Center for Occupational Health in Automobile Manufacturing and is Executive Director for the Institute for Ergonomics. Dr. Marras also holds joint appointments in the Departments of Orthopaedic Surgery, Physical Medicine & Rehabilitation, as well as Biomedical Engineering. Currently he is developing a Spine Research Institute at Ohio State that is a collaborative effort between the College of Medicine and College of 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 lumbar and cervical spine. His findings have been published in over 200 peer reviewed journal articles and numerous books and book chapters including a recent book entitled "The Working Back: A Systems View." He holds Fellow status in six professional societies including the American Society for the Advancement of Science (AAAS) and has been widely recognized for his contributions through numerous national and international awards including an honorary Sc.D. degree. Professor Marras was the past Chair of the Board on Human Systems Integration at the National Research Council (NRC). He is currently Editor-in-Chief of *Human Factors*, Deputy Editor of *Spine*, and has been elected to the National Academy of Engineering (the National Academies). Recently he recorded a TED talk entitled "Back pain and your brain