



**International Society for
Occupational Ergonomics & Safety**

The XXXIVth Annual Occupational Ergonomics and Safety Conference

CONFERENCE PROGRAM

September 15-16, 2022

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**International Society for
Occupational Ergonomics & Safety**

2022 ISOES CONFERENCE SCHEDULE

All times are US Eastern Daylight Savings Time (EDT) / GMT-4

THURSDAY, SEPTEMBER 15

| | | |
|---|-------|-------|
| Welcome Session | 9:00 | 9:15 |
| Keynote Address: Gary Orr (OSHA) | 9:15 | 10:15 |
| Break | 10:15 | 10:30 |
| <i>Session I: Biomechanics & MSKs</i> | 10:30 | 12:00 |
| Lunch Break | 12:00 | 12:30 |
| <i>Session II: Occupational Health & Safety</i> | 12:30 | 2:20 |
| Break | 2:20 | 2:30 |
| ISOES - General Body Meeting | 2:30 | 3:20 |
| General announcements & closing | 3:20 | 3:30 |

FRIDAY, SEPTEMBER 16

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| ISOES EXECUTIVE COMMITTEE MEETING | 8:15 | 9:00 |
| Keynote Address: Raina Shah (Applied Safety & Ergonomics) | 9:00 | 10:00 |
| Break | 10:00 | 10:10 |
| <i>Session III: Occupational Health & Safety Case Studies</i> | 10:10 | 12:00 |
| Lunch Break | 12:00 | 12:30 |
| <i>Session IV: Ergonomics & Human Factors</i> | 12:30 | 1:55 |
| Conference Closing - Adjournment | 1:55 | 2:00 |

Thursday, September 15, 2022

Join Zoom Meeting

<https://us02web.zoom.us/j/81936305510?pwd=JNBp5wTIXO5fbHSUGuHFYsnR2PaIQ-.1>

Meeting ID: 819 3630 5510

Passcode: 202234

Welcome Session

**Steve Fleming, CPE
Page Engineering, Inc.**

9:00 am to 9:15 am



Short Bio: Steve Fleming has 19 years of experience working as an ergonomist for Page Engineering, Inc. in Jackson, MI. Steve has performed Occupational Ergonomics studies for a wide range of industries, including: Amazon, Baltimore Therapeutic Equipment, FedEx, Fiat Chrysler Automobiles, Ford Motor Company, Lear Seating, USPS, Blue Water Bridge Authority, and most Class 1 North American Railroads. Mr. Fleming holds a B.S.E. in Industrial and Operations Engineering from The University of Michigan and an MBA from Spring Arbor University. He is a Certified Professional Ergonomist (CPE #1919) by the Board of Certification in Professional Ergonomics.

Keynote Address

**Gary Orr, Health Scientist - Ergonomist
Senior Ergonomist, OSHA
Directorate of Enforcement Programs**

9:15 am to 10:15 am



Short Bio: Gary Orr is a licensed engineer and certified professional ergonomist. He works at the US Department of Labor, Occupational Safety and Health Administration (OSHA) in the Office of Health Enforcement. His work includes developing policies, coordination of regional efforts and assistance for OSHA compliance officers with investigations. Prior to joining OSHA, he had been a consultant to a variety of industries including healthcare, distribution, meatpacking, textiles and was the lead ergonomist in the implementation of the ergonomics process for one of the largest employers in the United States. He is an adjunct professor at the University of Maryland School of Occupational and Environmental Medicine and serves on the Board of Directors for the Applied Ergonomics Society.

Moderators: Anand S. Iyer PhD, CPE, ASP, CSSBB and Jim Borchardt, CPE, CSP

Break

10:15 am to 10:30 am

| Session I - Biomechanics & MSKs | | 10:30 am to 12:00 pm |
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| Session Chairs: Marc Snell, Ph.D. and George Page, MSE, CPE | | |
| # | Title | Authors |
| 1 | Changes in Neck Muscle Reflex Responses Post Fatigue of Cervical Spine | Majed Zreiqat and Ashish Nimbarte |
| 2 | Influence of Metacarpal Gloves on Hand Dexterity and Strength: A Pilot Study | Madison Bailey, Taryn Damm, Emily O'Brien, Aaron Smith, Eduardo Sosa, Sueann Woods and B. Seth Powers |
| 3 | Comparison of Muscle Activity for Sitting and Standing Positions on a Computer Workstation | David Imuetinyan, Suede Willoughby, Babajide Ayodele and Fereydoun Aghazadeh |
| 4 | Symptoms of musculoskeletal disorders perceived among dental students. | Carlos Adorno, Yolanda Penayo-Giménez, Lourdes Rojas-Rolón, Viviana Vargas-Peralta, Pánfilo Dominguez and Juan Carlos Ortiz Hugues |

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| Lunch Break | 12:00 pm to 12:30 pm |
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| Session II – Occupational Health & Safety | | 12:30 pm to 2:20 pm |
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| Session Chairs: Anand S. Iyer PhD, CPE, ASP, CSSBB and Jaejin Hwang, Ph.D. | | |
| # | Title | Authors |
| 1 | Finite Element Analysis of the Anchorage Forces of a Vertical Mast Climber System | John Z Wu, Christopher S Pan, Bryan M Wimer, Christopher Warren and Ren G Dong |
| 2 | Teaching and learning accident theory and analysis using a complex learning experience | Ciro F. Bustillo Lecompte, Daniel Huynh, Sydney Riley and Kathryn Woodcock |
| 3 | Causes of Oxygen Deficiency Identified in the OSHA Accident Database | Chiemezie Anthony Udemba and Professor Jerry Purswell |
| 4 | Vision-Based Personal Protective Equipment (PPE) Recognition for Construction Worker Safety Compliance Monitoring | Shashank Muley, Chao Wang, Srikanth Sagar Bangaru, Fereydoun Aghazadeh |
| 5 | Firefighting gloves: a literature review on ergonomic issues | Anna Sophia Piacenza Moraes, Rafaela Seabra Leal, Fernando Nunes Ferreira and Miguel Angelo Carvalho |

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| Break | 2:20 pm to 2:30 pm |
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| General Body Meeting – ISOES Members | 2:30 pm - 3:20 pm |
| General Announcements & Closing | 3:20 pm – 3:30 pm |

Friday, September 16, 2022

Join Zoom Meeting

<https://us02web.zoom.us/j/81936305510?pwd=JNBp5wTIXO5fbHSUGuHFYsnR2PalQ-.1>

Meeting ID: 819 3630 5510

Passcode: 202234

Executive Committee Meeting (EC Members login using the EC Zoom Meeting Info)

8:15 am to 9:00 am

Keynote Address

Raina J. Shah, M.S.E., C.P.S.M., CPE

9:00 am to 10:00 am

Principal Consultant

Applied Safety and Ergonomics, A Rimkus Company

Title: Context matters: Considerations for applying workplace health and safety frameworks



Short Bio: Ms. Shah is a Principal Consultant at Applied Safety and Ergonomics, A Rimkus Company and directs chemical risk communication activities. She has consulted and conducted research in the areas of human factors, warnings, and product and occupational safety for over 20 years and has extensive experience in litigation matters related to chemical hazard communication, automotive human factors, and consumer product safety and warnings. Ms. Shah has played an active role in national standards for chemical labeling (ANSI Z129.1), material safety data sheets (ANSI Z400.1), and consumer product warnings and instructions (ANSI Z535) and has regularly guest lectured at the University of Michigan on topics including hazard communication, driver distraction, and uncertain health and safety risks. Ms. Shah holds a master's degree in Industrial and Operations Engineering from the University of Michigan, as well as bachelor's degrees from the University of Michigan in both Psychology and Industrial and Operations Engineering. She is a Certified Product Safety Manager (C.P.S.M.) and a Certified Professional Ergonomist (CPE).

Moderators: Steve Fleming, CPE and Marc Snell, Ph.D.

Break

10:00 am to 10:10 am

Session III - Occupational Health & Safety Case Studies

10:10 am to 12:00 pm

Session Chairs: Jim Borchardt, CPE, CSP and Udemba Chiemezie Anthony, PhD Candidate

| # | Title | Authors |
|---|--|---|
| 1 | Failure of Fiberglass Ladders Due to Manufacturing Defects | Oren Masory |
| 2 | Analysis of Variance (ANOVA) Assumptions Review: Normality, Independence, and Variance Equality | Alvah Bittner |
| 3 | Ergonomic Safety Analysis of Tilting a Concrete Grinding Machine | Wylie Wong, Suzanne F. Uchneat, Dennis B. Brickman, Erick H. Knox and Joseph T. Eganhouse |
| 4 | Lean Construction Tools and Safety Practices: An Integrated Approach to Reduce Accidents at Indian Construction Workplaces | Vigneshkumar Chellappa |
| 5 | Assessment of Spine Deterioration in Astronauts While in Space | Priyadarshini Dasgupta, Kyle Snyder, and Daniel Hollander |

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| Lunch Break | 12:00 pm to 12:30 pm |
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| Session IV - Ergonomics & Human Factors | | 12:30 pm to 1:55 pm |
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| Session Chairs: Clarence Rodrigues, Ph.D., PE, CSP, CPE and Priyadarshini Dasgupta, PhD, ScD | | |
| # | Title | Authors |
| 1 | Effects of Virtual Hands on Physical Demands and Task Performance for Typing in Virtual Reality | Mobasshira Zaman, Chandra Shekhar Verma Alluri and Jaejin Hwang |
| 2 | A Starting Point Language Set to Support Performing Safe Whole-Body Exertions in the Workplace—Part 1—Temporality | George Page, Greg Weames and Steve Fleming |
| 3 | Digital Workplace Stress Management: A System for Digital Ergonomics Assessment in the BMW Group | Marc Snell |
| 4 | Ergonomics Evaluation for a Proposed Lighter-Weight Brake Stick for Railroad Freight Car Hand Brake Operation | Steve Fleming, Greg Weames and George Page |

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| Conference Closing - Adjournment | 1:55 pm to 2:00 pm |
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