

46th International Workshop on Human Subjects for Biomechanical Research

National Highway Traffic Safety Administration

Catamaran Hotel – San Diego, CA

Rodney W. Rudd, Chair

Sunday, November 11, 2018

PROGRAM

7:30-8:55 REGISTRATION

8:55-9:00 OPENING REMARKS

9:00-10:15 SESSION I

Ongoing Results from Low-uncertainty Estimates of Single Head Impacts in American Football, Ice Hockey, Lacrosse, and Combat Sports

Adam Bartsch

Prevent Biometrics

Experiments to Evaluate Dummy and Model Biofidelity in Far-side Impacts in a Realistic Vehicle Environment

Jason Forman¹, D. Perez-Rapela¹, J.P. Donlon¹, J. Crandall¹, B. Pipkorn²

¹ Center for Applied Biomechanics, University of Virginia, ² Autoliv Research

Biofidelity of THOR 5th Female Abdomen in Fixed-back Belt Pull Tests

Ellen Lee¹, J. Stammen¹, R. Ramachandra², Y-S Kang², J. Bolte IV²

¹ National Highway Traffic Safety Administration, ² Injury Biomechanics Research Center, The Ohio State University

10:15-10:35 BREAK

10:35-11:50 SESSION II

Multi-body Modeling of the Brain and Cervical Spine: Towards Rapid Injury Prediction and Prevention

Michael Fanton¹, K. Laksari³, L. Wu⁴, J. Ruan⁵, S. Barbat⁵, D. Camarillo^{1,2}

¹ Department of Bioengineering, Stanford University, ² Department of Mechanical Engineering, Stanford University, ³ Department of Mechanical Engineering, University of Arizona, ⁴ Department of Mechanical Engineering, University of British Columbia, ⁵ Ford Motor Company

THOR-AV (Autonomous Vehicle) Dummy FE Model Development

Fuchun Zhu, J. Li, K. Pallavajhala, Z. Zhou

Humanetics Innovative Solutions, Inc.

GHBMCM50-O Occupant Response in Moderate-speed Rear Impacts

Maika Katagiri¹, J. Zhao¹, S. Lee¹, Y-S Kang²

¹ Joyson Safety Systems, ² Injury Biomechanics Research Center, The Ohio State University

11:50-1:20 LUNCH

1:20-2:35

SESSION III

Biomechanical Responses of Pediatric Occupants in Non-standard Seating Positions – A Pilot Study Utilizing Human Body Models

Aditya Belwadi, J. Maheshwari, S. Sarfare

Center for Injury Research and Prevention, Children's Hospital of Philadelphia

THOR 50M Suitability for Automated Vehicle Crashworthiness

Jerry Wang¹, J. Li¹, K. Pallavajhala¹, Z. Zhou¹, F. Zhu¹, J. Hu², M. Reed², K. Boyle²

¹ Humanetics Innovative Solutions, Inc., ² University of Michigan Transportation Research Institute

Restraint Biomechanics in Frontal Impacts with Inboard-leaning Occupants

John-Paul Donlon¹, R. Richardson¹, J. Forman¹, J. Kerrigan¹, R. Kent¹, C. Holt², T. Seacrist², K. B. Arbogast², V. Maripudi³

¹ Center for Applied Biomechanics, University of Virginia, ² Center for Injury Research and Prevention, Children's Hospital of Philadelphia, ³ Joyson Safety Systems

2:35-2:55

BREAK

2:55-4:35

SESSION IV

Head Trajectories of Post-mortem Human Surrogates in Moderate-speed Rear Impacts

Yun-Seok Kang¹, K. Moorhouse², J. Bolte¹

¹ Injury Biomechanics Research Center, The Ohio State University, ² National Highway Traffic Safety Administration

Global Head and T1 Corridors from Post-mortem Human Surrogates Frontal Sled Tests

John Humm^{1,2}, F. Meyer³, N. Yoganandan¹, F. Pintar²

¹ Department of Neurosurgery, Medical College of Wisconsin, ² Department of Biomedical Engineering, Medical College of Wisconsin and Marquette University, ³ University of Strasbourg

Biomechanical Response of Post-mortem Human Surrogates Subjected to Impacts from Unmanned Aircraft Systems

David Stark¹, M. McCrink², Z. Eschelmann¹, A. Willis¹, Y-S Kang¹, J. H. Bolte IV¹

¹ Injury Biomechanics Research Center, The Ohio State University, ² Aerospace Research Center, The Ohio State University

Identifying Field Crash Data Collection Needs for a Pedestrian Crash Avoidance and Crashworthiness Study

Jack Lockerby¹, R. Rudd², P. Martin², J. Rupp³, F. Pintar⁴, J. Stitzel⁵

¹ Bowhead Logistics Systems, ² National Highway Traffic Safety Administration, ³ Department of Emergency Medicine, Emory University, ⁴ Department of Biomedical Engineering, Medical College of Wisconsin and Marquette University, ⁵ Center for Injury Biomechanics, Virginia Tech Wake Forest University School of Biomedical Engineering and Sciences

4:35-4:45

CONCLUDING REMARKS