2017 Stapp Technical Program

9:15  Welcome and Opening Remarks – General Chair, Guy S. Nusholtz

9:30  Keynote Address by Dr. Adrian K. Lund, President, Insurance Institute for Highway Safety
      Crashworthy Vehicles on the Road to Zero

Monday Morning

Biomechanics of the Spine, Abdomen, and Shoulder

10:00  Biomechanics of Lumbar Motion-Segments in Dynamic Compression
       Mike W. J. Arun, Prasannaah Hadagali, Klaus Driesslein, William Curry, Narayan
       Yoganandan, Frank A. Pintar, Department of Neurosurgery, Medical College of Wisconsin

10:30 – 11:00  Break

11:00  Human Shoulder Response to High Velocity Lateral Impact
       Matthieu Lebarbé, CEESAR; Philippe Vezin and Frédéric Rongieras, IFSTTAR; Denis
       Lafont, DGA TT

11:30  SC: Effect of Postmortem Time and Preservation Fluid on the Tensile Failure Properties
       of Bovine Liver Parenchyma
       Kristin M. Dunford and Andrew R. Kemper, Virginia Tech-Wake Forest University, Center
       for Injury Biomechanics; Tanya LeRoith, Virginia-Maryland College of Veterinary Medicine

11:45 – 1:45  LUNCH

Monday Afternoon

Brain and Neuron Response and Injury

1:45  SC: Development of Improved Brain Injury Predictors for Diverse Impacts
       Lee F. Gabler, Jeff R. Crandall, Matthew B. Panzer, University of Virginia; Norbert Praxl,
       Partnership for Dummy Technology and Biomechanics, Germany; Philipp Wernicke, BMW
       Group, Germany

2:00  Strain-Rate Dependency of Axonal Tolerance for Uniaxial Stretching
       Hiromichi Nakadate, Eyrim Kurtoglu, Hidenori Furukawa, Shoko Oikawa, Shigeru Aomura,
       Tokyo Metropolitan University; Akira Kakuta, National Institute of Technology, Tokyo
       College; Yasuhiro Matsui, National Traffic Safety and Environment Laboratory

2:30  SC: Belted Female Occupants in Frontal Car Crashes are More Likely to Sustain
      Moderate Concussions than Male Occupants
       Jacobo Antona-Makoshi, Japan Automobile Research Institute; Johan Davidsson,
       Chalmers University of Technology, Sweden; Mats Lindkvist, Umeå University

2:45–3:15  Break

3:15—5:15  SPECIAL SESSION: Chest Injury and Injury Criteria
TUESDAY MORNING

Effects of Occupant Kinematics and Seating Position on Injury Risk

9:00 Optimizing Seat Belt and Airbag Designs for Rear Seat Occupant Protection in Frontal Crashes
   Jingwen Hu, Matthew P. Reed, University of Michigan Transportation Research Institute; Jonathan D. Rupp, Emory University School of Medicine; Kurt Fischer, Paul Lange, Angelo Adler, ZF TRW Automotive Holdings Corp.

9:30 SC: Occupant Torso Kinematics in Low Acceleration Time-Extended Evasive Swerving Events
   Christine Holt, Drexel University/Children’s Hospital of Philadelphia; Valentina Graci, Children’s Hospital of Philadelphia; Sriram Balasubramanian, Drexel University/Children’s Hospital of Philadelphia; Richard Kent, University of Virginia; Kristy B. Arbogast, Children’s Hospital of Philadelphia

9:45 Occupant Kinematics in Simulated Autonomous Driving Vehicle Collisions: Influence of Seating Position, Direction and Angle
   Yuichi Kitagawa, Shigeki Hayashi, Katsunori Yamada, Mitsuaki Gotoh, Toyota Motor Corporation

10:15-10:45 Break

Human Response and Modeling to High-Speed Vertical Loading

10:45 Human Foot-Ankle Injuries and Associated Risk Curves from Under Body Blast Loading Conditions
   Sajal Chirvi, Frank A. Pintar, Narayan Yoganandan, Anjishnu Banerjee, Mike Schlick, William Curry, Medical College of Wisconsin; Liming Voo, Johns Hopkins University Applied Physics Laboratory

11:15 Development of the CAVEMAN Human Body Model: Validation of Lower Extremity Sub-Injurious Response to Vertical Accelerative Loading
   Kent Butz, Chad Spurlock, Rajarshi Roy, Cameron Bell, Paul Barrett, Aaron Ward, Xudong Xiao, Allen Shirley, Colin Welch and Kevin Lister, Corvid Technologies

11:45 Neck Injury Response in High Vertical Accelerations and its Algorithmical Formalization to Mitigate Neck Injuries

12:15 - 2:00 LUNCH

Tuesday Afternoon

2:00 Presentation of 2016 Stapp Best Paper Award, presented by Erik G. Takhounts to Anicet Le Ruyet, Université Claude Bernard Lyon 1, IFSTTAR, UMR_T9406, LBMC, Lyon, France; Fabien Berthet, Transpolis SAS, Lyon Saint-Exupéry Aéroport, France; Frédéric Rongiéras, Université Claude Bernard Lyon 1, IFSTTAR, UMR_T9406, LBMC, Lyon, France/Service Chirurgie Orthopédique et Traumatologie – Hôpital Desgenettes, Lyon, France; Philippe Beillas, Université Claude Bernard Lyon 1, IFSTTAR, UMR_T9406, LBMC, Lyon, France for Effect of Abdominal Loading Location on Liver Motion: Experimental Assessment Using Ultrafast Ultrasound Imaging and Simulation with a Human Body Model

Call for Papers for 2018 Conference, San Diego, CA
ATDs, Human Body Model and Crash Data Analysis Methodologies

2:15  Biofidelity Evaluation of the THOR and Hybrid III 50th Percentile Male Frontal Impact Anthropomorphic Test Devices
     Daniel Parent, Matthew Craig, Kevin Moorhouse, National Highway Traffic Safety Administration

2:45  Analysis of Repeatability and Reproducibility Standards of ATD Response for the Correlation Method
     Lan Xu and Guy S. Nusholtz, FCA US LLC USA

3:15—3:45  Break

3:45  SC: Multi Directional THOR Testing Comparison to an Updated FE THOR Model
     Derek A. Jones, Kyle P. McNamara, James P. Gaewsky, Wake Forest School of Medicine, Virginia Tech – Wake Forest University Center for Injury Biomechanics; Jacob B. Putnam, KBRwyle; Ashley A. Weaver, Wake Forest School of Medicine, Virginia Tech – Wake Forest University Center for Injury Biomechanics; Jeffrey T. Somers, KBRwyle; Joel D. Stitzel, Wake Forest School of Medicine, Virginia Tech – Wake Forest University Center for Injury Biomechanics

4:00  SC: Leveraging Human Body Models of Varying Complexity for Computational Efficiency
     Berkan Guleyupoglu, Bharath Koya and F. Scott Gayzik, Wake Forest University School of Medicine; Virginia Tech – Wake Forest Center for Injury Biomechanics

4:15  Application of Extreme Value Theory to Crash Data Analysis
     Lan Xu and Guy Nusholtz, FCA US LLC USA

Wednesday Morning

Biomechanics of Pedestrian and Cyclist Injuries

9:00  New Reference PMHS Tests to Assess Whole-Body Pedestrian Impact Using a Simplified Generic Vehicle Front-End
     Eric Song, Philippe Petit, Xavier Trosseille, LAB PSA Renault; Jerome Uriot, Pascal Potier, Denis Dubois, CEESAR; Richard Douard, Université Paris René Descartes

9:30  Association of Impact Velocity with Serious-injury and Fatality Risks to Cyclists in Commercial Truck–Cyclist Accidents
     Yasuhiro Matsui, National Traffic Safety and Environment Laboratory, Japan; Shoko Oikawa, Tokyo Metropolitan University, Japan; Kazuhiro Sorimachi, Akira Imanishi and Takeshi Fujimura, Isuzu Advanced Engineering Center, Ltd., Japan

10:00 – 10:30  Break

10:30  SC: Relationship between Pedestrian Legform Tests and Injury Rates in Vehicle-to-Pedestrian Crashes in the United States
     Becky C. Mueller and Joseph M. Nolan, Insurance Institute for Highway Safety

10:45  Optimal Specifications for the Advanced Pedestrian Legform Impactor
     Takahiro Isshiki, Jacobo Antona-Makoshi, Atsuhiro Konosu, Japan Automobile Research Institute; Yukou Takahashi, Japan Automobile Manufacturers Association, Inc.

11:15  Presentation of John W. Melvin Best Student Paper Awards, Albert I. King

11:30  Adjournment, Guy S. Nusholtz, General Chair