Day 1 (Wednesday, May 7)

8:30- **Registration** Page

9:00-9:20 **Opening Remarks**

COL M. Scherer, DoD Blast Injury Research Program Coordinating Office, USAMRDC (USA)
Prof. S. Tomura, Division of Traumatology, National Defene Medical College Research Institute (Japan)

9:20- **Keynote 1**

TCCC, Blood Bank, Evacuation..., there are more to prepare for contingency

Lt. Gen. N. Kuwada
Vice President for Military Training and Defense Medical Research of National Defense Medical College (Japan)

Session1: Blast Overpressure (BOP) Exposure Monitoring 1
Co-chairs: Dr. S. Grobert & Dr. S. Sato

9:40- **Correlating Blast Dosimeter Data with an Instrumented Headform** 43
J. P. Dionne[1], A. Makris[1], B. Genest[2], J. Levine[1], G. St-Onge[2], S. Ouellet[2]
[1]Med-Eng Holdings ULC (Canada)
[2]Defence Research and Development Canada (DRDC) Valcartier (Canada)

9:55- **Evaluation of Blast Exposure of Military Personnel During Firing of 84 mm Recoilless Rifle** 45
W. Nagata[1], T. Nara[1], K. Ito[1], E. Nakayama[1], Y. Hirakawa[1], S. Kurihara[1], T. Nihongi[1], N. Ito[1], M. Kawasaki[1], S. Kawauchi[2]
[1]Japan Ground Self-Defense Force (Japan)
[2]National Defense Medical College Research Institute (Japan)

10:10- **Development of a Biofidelic, Instrumented Head Form to Quantify Blast Wave Propagation through a Human Head** 47
J. J. Meyer[1], G. Thorne[1], S. Dempaire-Solomon[2], E. Spivey[1], A. Stahl[3], D. E. Adams[1], T. Rex[2]
[1]Laboratory for Systems Integrity and Reliability (LASIR), Vanderbilt University (USA)
[2]Vanderbilt Eye Institute, Vanderbilt University Medical Center (USA)
[3]Neuroscience Graduate Program, Vanderbilt University (USA)

10:25- **Shock Wave Measurements Using High-Resolution Distributed Acoustic Sensing** 49
J. W. Denny[1], R. Critchley[3], T. Lee[2], M. Beresna[2], G. Brambilla[2], A. Masoudi[2]
[1]School of Engineering, University of Southampton (UK)
[2]Optoelectronics Research Centre (ORC), University of Southampton (UK)
[3]Cranfield Forensic Institute, Cranfield University (UK)

10:40-10:55 **Break - 15 min**

Session2: Blast Overpressure (BOP) Exposure Monitoring 2
Co-chairs: Dr. S. Grobert & Dr. S. Sato

10:55- **Use of the Shockwave Generator for Research on Low-Level Blast Effects** 51
H. Seeber[1], M. Gerbeit[2], D. Grasse[2], M. Donner[2], D. Krentel[2], S. Grobert[3]
[1]Helmut Schmidt University – University of the Federal Armed Forces Germany (Germany)
[2]German Federal Institute for Materials Research and Testing (BAM) (Germany)
[3]Bundeswehr Defence Planning Office (Germany)

11:10- **Investigation on the Procedures for Live-Fire Testing of Shock Wave Measurement on Bulletproof Vests at Impact** 53
T. Nara, W. Nagata, E. Nakayama, N. Ito, K. Ito, S. Kurihara, M. Kawasaki
Military Medicine Research Unit, Test & Evaluation Command, Japan Ground Self-Defense Force (Japan)

11:25- **Individual In-ear Exposure Monitoring Relevant to Military Environments** 55

T. Argo[1], B. Mary[1], D. Welsh[1], G. Rule[1], D. Anderson[2], N. Greene[3], A. Brown[4]
[1]Applied Research Associates, Inc. (USA)
[2]Department of Electrical Engineering, The University of Minnesota at Duluth (USA)
[3]Department of Otolaryngology, The University of Colorado Anschutz Medical Campus (USA)
[4]Department of Speech and Hearing Sciences, The University of Washington (USA)

11:40- **Tutorial 1** 33

Blast Overpressure Tool for Range Safety

Dr. R. K. Gupta[1], E Brokaw[2], H. T. Garimella[3], L. Lalis[2], M. Oliver[2], D. Palmer[4], A. Przekwas[3], R. W. Spencer[2]
[1]US Army Medical Research and Development Command (USAMRDC) (USA)
[2]The MITRE Corporation (USA)
[3]Computational Fluid Dynamics Research Corporation (CFDRC) (USA)
[4]Federal Strategies, LLC (USA)

12:05-13:20 **Lunch 75 min (including 10 min for taking Group Photos)**

13:20- **Tutorial 2** 34

Biomechanical Outcomes Based Pre-Clinical Injury Scaling for Lung and Brain Following Blast Exposure

Dr. V. S. Sajja,Y. Chen, K. Ondar, D. Wilder, R. Kakulavarapu, S. Dahal, J. Long
Blast Induced Neurotrauma Branch, Center for Military Psychiatry and Neurosciences, Walter Reed Army Institute of Research (USA)

Session 3: Blast Exposure and Brain Injury: Preclinical 1
Co-chairs: Dr. V. S. Sajja & Dr. A. Tashiro

13:45- **Introducing C. elegans as a Model to Investigate the Molecular Mechanisms of Blast Related Traumatic Brain Injury** 57

J. Tittelmeier[1], H. Seeber[2], D. Krentel[3], D. Grasse[3], S. Grobert[4], C. Schmitz[1], C. Nussbaum-Krammer[1]
[1]Department of Anatomy II, Chair of Neuroanatomy, Faculty of Medicine, Ludwig-Maximilians-University (LMU) Munich (Germany)
[2]Helmut Schmidt University, Bundeswehr University Hamburg (Germany)
[3]Bundesanstalt fuer Materialforschung und -pruefung (Germany)
[4]Bundeswehr Office for Defence Planning (Germany)

14:00- **Differential Response of Distinct Lipid Subclasses in Single and Low Level Repeated Blast and Blunt Induced Neurotrauma: A Preclinical Study** 58

S. Dhariwal, R. Vishnoi, A. Sharma, M. Kumari, M. Aleem, K. Manda, R. Trivedi, P. Rana
Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO (India)

14:15- **Brain Hyperactivity and Sleep Disturbances Caused by Repeated Blast-Induced TBI in Rats** 59

F. Rossetti, M. Fleetwood, D. M. Wilder, J. B. Long
Blast-Induced Neurotrauma Branch, Center for Military Psychiatry and Neuroscience, Walter Reed Army Institute of Research (USA)

14:30- **Observation of Low-Frequency Oscillation of Cerebral Blood Volume and Hypoxemia in Rat Brain Exposed to a Laser-Induced Shock Wave** 61

I. Nishidate[1,2], R. Hirohata[1], Y. Nagahama[2], S. Kawauchi[3], S. Sato[3]
[1]Graduate School of Bio-applications and Systems Engineering, Tokyo University of Agriculture and Technology (Japan)
[2]Department of Biomedical Engineering, Tokyo University of Agriculture and Technology (Japan)
[3]Division of Bioinformation and Therapeutic Systems, National Defense Medical College Research Institute (Japan)

14:45-15:00 **Break - 15 min**

15:00- **Tutorial 3** 36

Molecular Dynamics Simulations of Shockwave Effects on Biological Membranes: Fundamentals and limitations

Dr. K. Koshiyama
Graduate School of Technology, Industrial and Social Sciences, Tokushima University (Japan)

Session 4: Blast Exposure and Brain Injury: Preclinical 2

Co-chairs: Dr. D. Agoston & Dr. N. Kiriu

15:25- **Hyperuricemia Ameliorates Irritable Bowel Syndrome Induced by Laser-Induced Shock Waves Through Brain-Cholinergic Pathway** 62

H. Nishimura[1], A. Mizoguchi[1], M. Higashiyama[1], S. Kawauchi[2], R. Hokari[1]
[1]Department of Internal Medicine, National Defense Medical College (Japan)
[2]Division of Bioinformation and Therapeutic Systems, National Defense Medical College Research Institute (Japan)

15:40- **Temporal Dynamics of HPA Axis and Associated Neuronal, Systemic and Gut Alterations in Blast Exposed Rats** 63

P. Arora[1,2], M. Aleem[1], M. Kumari[1], S. Deshwal[2], N. Dhiman[2], N. Chauhan[3], S. S. Kumaran[3], K. Manda[1], P. Rana[1], R. Sandhir[2], R. Trivedi[1]
[1]Institute of Nuclear Medicine and Allied Sciences, DRDO (India)
[2]Department of Biochemistry, Panjab University (India), [3]All India Institute of Medical Sciences (India)

15:55- **Comparison of Blood-Brain Barrier Permeability Changes in Gyrencephalic (Ferrets & Non-human Primate) and Lissencephalic (Rat) Models Following Blast Overpressure Exposures** 65

K. V. Rama Rao, V. L. McLean, D. M. Wilder, S. Dahal, M. Kattuparambil, J. B. Long, V. S. Sajja
Blast Induced Neurotrauma Branch, Center for Military Psychiatry and Neurosciences, Walter Reed Army Institute of Research (USA)

16:10- **Comprehensive Multi-Tissue Metabolic Signatures Following Blast Exposure in Ferret and Rodent Models** 67

M. Y. Patel[1,2], B. Misganaw[1,3], A. Hoke[1], I. C. Rosales[1,3], S. Kannan[1,3], N. C. Gary[1,3], D. Barnes[1,4], S. Dahal[5,6], V. Sajja[6], J. Long[6], A. Gautam[1], R. Hammamieh[1]
[1]Medical Readiness Systems Biology, Walter Reed Army Institute of Research (USA)
[2]Army Educational Outreach Program (USA)
[3]Vysnova Partners (USA)
[4]The Oak Ridge Institute for Science and Education (USA)
[5]Katmai Government Services (USA),
[6]Blast induced Neurotrauma, Walter Reed Army Institute of Research (USA)

Wrap up

Day 2 (Thursday, May 8)

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8:30-	**Registration**	
9:00-	**Keynote 2** **Nanophotonic Probes for Blast-induced Brain Injury Studies** **Dr. S. P. Karna** USA DEVCOM, Army Research Laboratory (USA)	29
	Session 5: Blast Exposure and Brain Injury: Preclinical 3 *Co-chairs: Dr. D. Agoston & Dr. I. Nishidate*	
9:30-	**Multi-Omics Analysis of Early Molecular Responses to Blast-Induced Traumatic Brain Injury in Mouse and Ferret Models** **A. Gautam**[1], J. Long[2], R. Hammamieh[1], V. S. Sajja[2] [1]Medical Readiness Systems Biology, Center for Military Psychiatry and Neuroscience, Walter Reed Army Institute of Research (USA) [2]Blast induced Neurotrauma Branch, Center for Military Psychiatry and Neuroscience, Walter Reed Army Institute of Research (USA)	68
9:45-	**miRNA Dysregulation Following Blast Exposure in Mice and Ferrets: Tissue-Specific and Time-Dependent Changes** **A. Gautam**[1], B. Misganaw[1,2], G. Dimitrov[1,3], A. Hoke[1], N. Gary[1,2], D. Barnes[1,4], S. Dahal[5,6], V. S. Sajja[6], J. Long[6], R. Hammamieh[1] [1]Medical Readiness Systems Biology, Walter Reed Army Institute of Research (USA) [2]Vysnova Partners (USA) [3]General Dynamics Information Technology (USA) [4]The Oak Ridge Institute for Science and Education (USA) [5]Katmai Government Services (USA) [6]Blast induced Neurotrauma, Walter Reed Army Institute of Research (USA)	70
10:00-	**Immediate and Short-Term Tissue-Specific DNA Methylation Changes in Mouse and Ferret Models of Primary Blast** **S. Dahal**[1], D. Wilder[1], B. Misganaw[2], A. Gautam[2], R. Hammamieh[2], J. B. Long[1], V. S. Sajja[1] [1]Blast Induced Neurotrauma Branch, Walter Reed Army Institute of Research (USA) [2]Medical Readiness and Systems Biology, Walter Reed Army Institute of Research (USA)	71
10:15-	**Translocation of HMGB1 from Nucleus to Cytoplasm in Neurons in Blast Induced Mild Traumatic Brain Injury** **T. Higashi**[1], Y. Satoh[2], Y. Kobayashi[1], K. Nishii[1] [1]Department of Anatomy and Neurobiology, National Defense Medical College (Japan) [2]Department of Biochemistry, National Defense Medical College (Japan)	73
10:30-10:40	**Break - 10 min**	
10:40-	**Keynote 3** **Probing and Sensing Ions, Water and Mechanical Dynamics in Astrocytes by Multifunctional Nanomaterials, Electronic and Optical Devices** **Dr. V. Benfenati** Consiglio Nazionale delle Ricerche, Istituto per la Sintesi Organica e Fotoreattività, Italy	30

Session 6: Blast Exposure and Brain Injury: Preclinical 4
Co-chairs: Dr. D. Priemer & Dr. S. Sato

11:10- **Long-Term Impairment of Glymphatic Efflux and Sleep Pattern Dysregulation in Rats with the Brain Exposed to a Laser-Induced Shock Wave** 74
S. Kawauchi[1], T. Nozawa[1], A. Kohno[1], A. Makino[1], I. Nishidate[1,2], S. Sato[3]
[1]Division of Bioinformation and Therapeutic Systems, National Defense Medical College Research Institute (Japan)
[2]Graduate School of Bio-Applications & Systems Engineering, Tokyo University of Agriculture and Technology (Japan)
[3]Professor Emeritus, National Defense Medical College (Japan)

11:25- **Laser-Induced Shock Wave to the Upper Neck Region Causes Hippocampal CA3 Damage in Mice** 76
T. Nagamura[1], S. Seno[1], N. Kiriu[1,3], S. Kawauchi[2], S. Tomura[3], T. Kiyozumi[1]
[1]Department of Traumatology and Critical Care Medicine, National Defense Medical College (Japan)
[2]Division of Bioinformation and Therapeutic Systems, National Defense Medical College (Japan)
[3]Division of Traumatology, Research Institute, National Defense Medical College (Japan)

11:40- **Shockwave-Based Non-Invasive Closed Head Injury in Mice: Conceptualization and Standardization** 78
M. A., Princy, K. Manda
Department of Behavioural Neuroscience, Institute of Nuclear Medicine and Allied Sciences (India)

Abstract only **Directional Blast-Induced Polytrauma and Military-Relevant Stress Effects on Acute Craniofacial Pain, Lower Extremity Pain, and Behavior in Rodents** 79
M. Priess[1], A. Mares[1], R. Chavez[1], T. Garza[1], A. Trevino[1], A. Szczesniak[1], M. McCloskey[1], W. Greene[1], J. Clifford[2], P. VandeVord[3], C. Hinojosa-Laborde[1], N. Davidson[1], M. Urban[1]
[1]U.S. Army Institute of Surgical Research (USA)
[2]National Cancer Institute (USA)
[3]Virginia Polytechnic Institute and State University (USA)

11:55- **Modeling Shockwave-Induced Post-Traumatic Epilepsy in Mice** 80
M. A., Princy, K. Manda
Department of Behavioural Neuroscience, Institute of Nuclear Medicine and Allied Sciences (India)

12:10- **Tutorial 4** 37
CNS Border-Associated Macrophages in Health and Disease
Dr. T. Masuda
Division of Molecular Neuroimmunology, Medical Institute of Bioregulation, Kyushu University (Japan)

12:35-13:40 **Lunch - 65 min**

13:40- **Keynote 4** 31
Post-Blast Symptomatology and the Diagnostic Controversy of TBI vs. PTSD: How Do We Decide? Lessons from History
Dr. D. P. Perl, **Dr. D. S. Priemer**
Uniformed Services University of the Health Sciences (USA)

Session 7: Blast Exposure and Brain Health 1
Co-chairs: Dr. B Brokaw & Dr. S. Tomura

14:10- **The NCAA-DoD CARE-SALTOS Integrated (CSI) Study: Baseline Characteristics and Preliminary Analysis within the Explosive Ordnance Disposal (EOD) Cohort** 81
S. Harcum[1,2], E. Ermer[1,2], D. Ryff[1,2], K. Jannace[1,2], S. Broglio[3], M. McCrea[4], T. McAllister[5], P. Pasquina[1,6]
[1]Uniformed Services University of the Health Sciences, Center for Rehabilitation Sciences Research (USA)
[2]The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc. (USA)
[3]University of Michigan (USA)
[4]Medical College of Wisconsin (USA)
[5]Indiana University (USA)
[6]Department of Physical Medicine and Rehabilitation, Walter Reed National Military Medical Center (USA)

14:25-	**Chronic Traumatic Encephalopathy in Military Service Members: Update from the Holdings of the Department of Defense/Uniformed Services University Brain Tissue Repository** **D. S. Priemer**[1,2], S. M. Abdallah[2,3], P. R. Smith[2,3], D. P. Perl[1,2] [1]Uniformed Services University School of Medicine, Department of Pathology (USA) [2]Department of Defense/Uniformed Services University Brain Tissue Repository (USA) [3]The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc. (USA)	83
14:40-	**Biological Resilience to Injury Incurred in Stress Environments: The Impact of Mild Traumatic Brain Injury and Blast on Saliva Biomarkers** **G. A. Bliesner**[1,2,3], I. Cernak[4], S. C. Hellewell[1,2,3,4] [1]Curtin Medical Research Institute (Australia) [2]Faculty of Health Sciences, Curtin University (Australia) [3]Perron Institute for Neurological and Translational Science (Australia) [4]Thomas F. Frist, Jr. College of Medicine, Belmont University (USA) [5]School of Medicine, University of Western Australia (Australia)	85
14:55-15:10	**Break - 15 min**	
15:10-	**Tutorial 5** **Blood Based Protein Biomarkers of Primary Explosive Blast Induced Traumatic Brain Injury; Advances, Challenges and Opportunities** **Dr. D. Agoston** Department of Anatomy, Physiology & Genetics, Uniformed Services University of the Health Sciences (USA)	38
	Session 8: Blast Exposure and Brain Health 2 *Co-chairs: Dr. B. Brokaw & Dr. S. Tomura*	
15:35-	**Lipidomics and Metabolomics Analysis Uncovers Subtle Systemic Changes in Servicemen Engaged in Repeated Low-Level Occupational Blast Wave Exposure** **P. Rana**, P. Arora, A. Sharma, R. Trivedi, P. Sharma, K. Manda Institute of Nuclear Medicine & Allied Sciences (INMAS) (India)	86
15:50-	**Repetitive Low Level Blast Exposure Results in Impaired Memory Function and Alteration in Associated White Matter Tracts** **R. Trivedi**, P. Arora, P. Bairwa, P. Kumar, P. Kaur, S. Modi, K. Manda, M. M D'Souza, P. Rana Institute of Nuclear Medicine and Allied Sciences (INMAS) (India)	88
16:05-	**Tutorial 6** **Characterizing High-Velocity Angular Vestibulo-Ocular Reflex Function in Servicemembers Post Blast Exposure** **COL M. Scherer** US Army Medical Research and Development Command (USAMRDC) (USA)	40
	Wrap up	
17:00-	**Conference Dinner（Place: Keio Plaza Hotel, 高尾 (Takao) , level 42）**	

Day 3 (Friday, May 9)

8:30- **Registration**

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Session 9: Therapies, Treatments, and Prevention

Co-chairs: Dr. J. Batchelor and Dr. S. Kawauchi

9:00- **Characterization of Blast-Mediated Immune Response and Immunomodulatory Treatment of Combat-Relevant Infection in Mice** 89

L. M. Werner[1], J. S. Bolton[2], Y. Alamneh[1], K. E. Rios[1], E. H. Duncan[2], V. R. Kakulavarapu[3], D. K. Finnegan[4], W. Su[1], R. JR S. Thanapaul[1,5], D. E. Boone[1], L. M. Gilbert[1], C. Leung[1], R. Abu-Taleb[1], D. Getnet[1], T. J. Walsh[6], V. Antonic[1], V. S. Sajja[3], E. S. Bergmann-Leitner[2], A. G. Bobrov[1]

[1]Bacterial Diseases Branch, Center for Infectious Diseases Research, Walter Reed Army Institute of Research, (USA)

[2]Immunology Core, Biologics Research and Development, Center for Infectious Diseases Research, Walter Reed Army Institute of Research (USA)

[3]Blast Induced Neurotrauma Branch, Center for Military Psychiatry and Neuroscience Walter Reed Army Institute of Research (USA)

[4]Diagnostic Pathology, Walter Reed Army Institute of Research (USA)

[5]NRC Research Associateship Programs, National Academies of Sciences, Engineering, and Medicine (USA)

[6]University of Maryland School of Medicine (USA)

9:15- **Topical Administration of P13 Peptide as Ear Drops for Protection Against Repeated Low-Level Blast-Induced Auditory Dysfunction** 91

P. Arun, M. Govindarajulu, G. Phuyal, J. Krishnan, J. Long

Blast-Induced Neurotrauma Branch, Center for Military Psychiatry and Neurosciences, Walter Reed Army Institute of Research (USA)

9:30- **Gamified Immersive Learning on Manual Ventilation for Visualization, Insights, and Building Muscle Memory** 93

M. Barshay[1], M. F. Brady[1], P. Prabhudesai[2]

[1]Alpert Medical School of Brown University (USA)

[2]SafeBVM (USA)

9:45- **Bag Valve Mask Ventilation in Tactical Combat Casualty Care: Flow Limitation is a Viable Alternative to Volume Limitation with 1000mL Resuscitator** 95

M. Barshay[1], M. F. Brady[1], P Prabhudesai[2]

[1]Alpert Medical School of Brown University (USA)

[2]SafeBVM (USA)

10:00- **Tutorial 7** 41

Preclinical Study on Pathogenesis and Molecular Targeted Therapy for Inner Ear Blast Injuries

Dr. K. Mizutari[1,3], T. Kurioka[2,3], S. Kawauchi[3], S. Sato[3]

[1]Department of Otolaryngology, Tokyo Women's Medical University Adachi Medical Center (Japan)

[2]Department of Otolaryngology, Kitasato University School of Medicine (Japan)

[3]Division of Bioinformation and Therapeutic Systems, National Defense Medical College Research Institute (Japan)

10:25-10:40 **Break - 15 min**

10:40- **Tutorial 8** 42

Mental Health Challenges After Blast-Induced TBI: Dimensional Approaches and the Promise of Decoded Neurofeedback

Dr. T. Chiba

Computational Neuroscience Laboratories, Advanced Telecommunications Research Institute International (Japan)

The Department of Psychiatry, Self-Defense Forces Hanshin Hospital (Japan)

Session 10: Modeling and Simulation of Blast Exposure and Injury

Co-chairs: Dr. R Gupta and Dr. Y. Kodama

11:05- **Implementation of a Bayesian Belief Network to Optimize Blast Research Data for Modeling and Simulation Supporting Battlefield Readiness** 96

C. Wagner[1], L. Young[1], A. Wu[2]

[1]Applied Research Associates, Inc. (USA)

[2]Defense Threat Reduction Agency (USA)

11:20- **Evaluating Underwater Blast and Lung Interaction Response Using Computational Models** 97

J. M. Magallanes, J. Raygoza, Y. Wu, D. Romero

Karagozian & Case, Inc. (USA)

11:35- **Computational Modeling of Blast-Induced Traumatic Brain Injury from Repetitive Blast Exposure** 98

M. Bansal[1], B. Fonkwa[2], A. L. Fawzi[3], E. Johnsen[2], C. Franck[3], R. W. Carlsen[1]

[1]Engineering Department, Robert Morris University (USA)

[2]Mechanical Engineering Department, University of Michigan (USA)

[3]Mechanical Engineering Department, University of Wisconsin-Madison (USA)

11:50- **Multiscale Finite Element Modeling of Blast Wave Transmission into Cochlear Hair Cells via Air and Bone Conductions** 100

Y. Jiang[1], J. Bradshaw[1], M. Brown[1], A. Bien[2], R. Gan[1]

[1]Biomedical Engineering Lab, School of Aerospace and Mechanical Engineering, University of Oklahoma (USA)

[2]Department of Otolaryngology Head and Neck Surgery, University of Oklahoma Health Sciences Center (USA)

12:05-13:10 **Lunch - 65 min**

Session 11: Personal Protective Equipment

Co-chairs: Dr. A. Makris and Dr. M. Kawasaki

13:10- **Research of Blast-Related Traumatic Brain Injury in Tokai University** 101

T. Mizukaki[1], D. Numata[1], T. Kikuchi[2], H. Atsumi[3], T. Sorimachi[3]

[1]Dept. of Aeronautics and Astronautics, Tokai University (Japan)

[2]Dept. of Aerospace Engineering, Nihon University (Japan)

[3]Department of Neurosurgery, School of Medicine, Tokai University (Japan)

13:25- **Design and Testing with Surrogate Helmets on Swine Models** 102

J. M. Hamilton[1], J. Lingua[1], A. Nelson[2], P. VandeVord[2]

[1]Karagozian & Case, Inc. (USA)

[2]The Center for Injury Biomechanics at Virginia Tech (USA)

13:40- **Investigation of the Effects on the Body of Shock Waves from Different Directions**

N. Kiriu[1,2,3], D. Saitoh[3,4], Y. Sekine[2,3], K. Yamamura[5], R. Sasa[2], T. Nagamura[3], S. Tomura[2], T. Kiyozumi[1,3]

[1]Center for Trauma, Burn and Tactical medicine, National Defense Medical College (Japan)

[2]Division of Traumatology, National Defense Medical College Research Institute (Japan)

[3]Department of Traumatology and Critical Care Medicine, National Defense Medical College (Japan)

[4]Graduate School of Emergency Medical System, Kokushikan University (Japan)

[5]Department of Oral Surgery, Self-Defense Forces Central Hospital (Japan)

13:55- **Evaluating the Combined Protective Effects of Helmets and Visors on Shock Wave Propagation During Mild Blast Loading Conditions** 106

S. Kumar[1], M. Aggarwal[1], A. Yadav[2], S. Ganpule[3], P. Sharma[1]

[1]Traumatic brain injury & Metabolomics Department, DRDO, Institute of Nuclear Medicine and Allied Science (INMAS) (India)

[2]Department of Mechanical Engineering, National Institute of Technology (India)

[3]Department of Physics, Indian Institute of Technology Roorkee (India)

Session 12: Military Operational Safety Guidance & Blast Injury Countermeasures 1

Co-chairs: COL M. Scherer and Captain H. Seeber

14:10- **Seizing the Moment: Establishing IFBIC as the Global Authority for Blast Injury Countermeasures** 108

P. Scanlan

Vigil Australia (Australia)

14:25- **Update on Blast Overpressure Monitoring and Mitigation Program Within a Special Operations Unit** 110

I. R. McKinney[1], P. W. Alt[2], J. J. Case[2], K. Bosch[1], M. Ray[1], C. M. McNamara[2], R. E. Modlin[2], D. W. Tyson[2], B. A. Benedict[2,3]

[1]The Geneva Foundation, Elite Forces Pilot Team (USA)

[2]U.S. Army, Fort Bragg (USA)

[3]Womack Army Medical Center, Fort Bragg (USA)

14:40-14:55 **Break - 15 min**

Session 13: Military Operational Safety Guidance & Blast Injury Countermeasures 2

Co-chairs: COL M. Scherer and Captain H. Seeber

14:55- **The Military Operational Medicine Research Overview and Challenges – Blast and Ballistic Induced Injury Mitigation** 112

T. Piehler[1], J. McEntire[2], F. Brozoski[2]

[1]The US Army Medical Research and Development Command (USA)

[2]US Army Aeromedical Research Laboratory (USA)

15:10- **Conducting the Small Arms Noise Dose Escalation Research (SANDER) Project: Validating Blast Exposure Damage Risk Criteria** 113

H. G. Jones[1], T. Piehler[2]

[1]U.S. Army Aeromedical Research Laboratory (USAARL) (USA)

[2]U.S. Army Medical Research and Development Command (USAMRDC) (USA)

15:25- **Translation of Auditory Injury Measurements from Test Fixtures to Humans** 115

T. Argo[1], C. Mattson[1], K. Reeser[1], A. Podolski[1], S. Cozza[1], R. Lowe[1], G. Rule[1], T. Walilko[1], N. Greene[2], A. Brown[3]

[1]Applied Research Associates, Inc. (USA)

[2]Department of Otolaryngology, The University of Colorado Anschutz Medical Campus (USA)

[3]Department of Speech and Hearing Sciences, The University of Washington (USA)

15:40- **Audiological Consequences of Blast Exposure** 117

D. Brungart[1], A. Davidson[1], D. Kulinski[1,§]

[1]National Military Audiology and Speech Center, Walter Reed National Military Medical Center (USA)

[§]Contractor in support of the corresponding organization (USA)

15:55- **Dynamic Response of the Human Eardrum After Exposure to Blast Waves** 118

H. Luo[1], S. Jiang[2], D. U. Nakmali[2], R. Z. Gan[2], H. Lu[1]

[1]Department of Mechanical Engineering, The University of Texas at Dallas (USA)

[2]School of Aerospace and Mechanical Engineering, University of Oklahoma (USA)

16:10- **Baselining Tier 1 Weapon Systems and Breaching Charges to Determine their Effects on Warfighter Brain Health** 119

O. Webster

Defense Centers for Public Health-Aberdeen (USA)

16:25-16:30 **Closing Remarks**