2nd Announcement and Call for Papers

7th International Forum on Blast Injury Countermeasures (IFBIC 2023)

May 17 (Wed) - 19 (Fri), 2023
Keio Plaza Hotel, Tokyo, Japan

https://www.ndmc.ac.jp/schoolnews/ifbic2023/

Objective and Scope

In recent years, attacks using explosive devices occur frequently not only on battlefields and in regions of conflict but also in urban areas due to terrorism, resulting in a large number of blast injury victims. The US Department of Defense uses the *Taxonomy of Injuries from Explosive Devices* (as described in DoDD 6025.21E) to organize blast injuries into five groupings based on their approximate order of temporal incidence upon the body following an explosion. Primary injuries result from the blast shock wave. Secondary injuries result from penetrating fragments of materials accelerated by the blast. Tertiary injuries result from accelerative loading or blunt impact to tissues. Quaternary injuries include dermal burns and toxic gas inhalation. Quinary injuries include contamination by nuclear, chemical or biological agents. Primary injuries that are peculiar to blast shockwave exposures include mild blast-induced traumatic brain injury (bTBI), hearing loss, ocular injury and lung injury. All body systems are vulnerable to secondary injuries due to penetrating fragments and tertiary injuries due to acceleration and blunt force trauma.

International cross-disciplinary collaboration is regarded as essential to investigate physical causes of blast injury, to characterize the vulnerability of anatomical systems and their functions to blasts, and to develop the means to prevent, mitigate and treat blast injuries. Countermeasures may include personal protective equipment; weapons and vehicle systems engineered for safety; tactics, techniques, and procedures (TTPs) for injury prevention; and medical interventions tailored to the specific needs of blast injuries.

This International Forum on Blast Injury Countermeasures (IFBIC) started as Technical Information Exchange Forum between Japan and the United States, which brought together broad knowledge and expertise, and to share national experiences and evidence-based approaches for blast injuries. The former three Japan-US Technical Information Exchange Forum on Blast Injury (JUFBI) were held in June 2016, April 2017 and May 2018, all in Tokyo. At the end of JUFBI 2018, the organizing committee decided to change the forum name to International Forum on Blast Injury Countermeasures to reflect the expanding participation by additional nations such as Australia, Canada, Germany, South Korea and the United Kingdom. IFBIC 2019 was held in McLean, USA, and IFBIC 2021 was held online due to the COVID-19 pandemic. IFBIC 2022 was held again in McLean, USA.

These meetings have been very productive, involving active and fruitful discussions and exchange of creative ideas on a broad spectrum of blast injuries, identifying critical issues involving experimental and computational studies of blast-induced injuries, and creating new partnerships on joint research explorations to address many scientific and technical challenges facing the related field. In IFBIC 2022, the participating

nations have expanded to Brazil, Canada, Honduras, India, Netherlands, South Africa, South Korea, Sweden, United Kingdom, in addition to the US and Japan.

Building upon these successful meetings, the 7th IFBIC will be held from May 17 (Wed) to 19 (Fri), 2023 in Tokyo, Japan.

The objectives for the 7th Forum include:

a. Assemble an international forum to increase understanding of blast injury and its countermeasures through a multi-disciplinary approach
b. Identify knowledge gaps in blast injury
c. Identify opportunities for collaborative research to improve prevention, diagnosis, and treatment addressing the entire spectrum of blast-related injuries

The meeting agenda includes the following broad topic areas. Innovative research beyond this topic list will also be considered:

1) **Blast injury epidemiology and environmental sensing of blast shockwave hazards**
   a) Clinical prevalence of varieties of blast injuries sorted by context, anatomy, and severity
   b) Blast energy / physics / waveforms, reflections, effects of media (e.g., air vs. water vs. solid material)
   c) Blast sensor engineering, test and evaluation, fidelity, usability
   d) Correlation of blast sensing with clinical outcomes
   e) Use of multiple sensors to reconstruct blast phenomena
2) **Primary blast injury (due directly to shockwave effects)**
   a) Experimentally derived injury risk criteria for anatomical structures and their functions, including brain, ocular, auditory, and lung
   b) Predicted incapacitation due to blast injuries (e.g., loss of neuromuscular control, reduced sensory or cognitive function, reduced respiration)
3) **Secondary (penetrating ballistic fragments) and tertiary (acceleration and blunt force) blast injury**
   a) Experimentally derived injury risk criteria for anatomical structures and their functions
   b) Predicted incapacitation due to blast injuries (e.g., loss of musculoskeletal force)
4) **Long-term effects, cumulative effects, and chronic symptoms due to blast exposure**
   a) Brain: aberrant protein expression and accumulation (e.g., phosphorylated Tau)
   b) Brain: chronic traumatic encephalopathy (CTE)-like symptoms
   c) Brain: correlation and comorbidity with post-traumatic stress disorder (PTSD)
   d) Effect of cumulative subclinical (i.e., not provoking diagnosis) exposures to blast phenomena for all body systems
   e) Effect of repeated clinical (i.e., provoking diagnosis) exposures to blast phenomena for all body systems
5) **Prevention, mitigation, treatment of blast injuries**
   a) Personal protective equipment (PPE) such as helmets, body armor, eye protection, hearing protection, etc.
   b) Weapon and vehicle systems engineered for safety in blast environments
   c) Tactics, techniques, and procedures (TTPs) for Warfighter safety in blast environments
   d) Operational mission planning for needed medical response
   e) Lessons learned from military operations
   f) Resilience training (e.g., stress inoculation, mindfulness-based cognitive therapies to prevent sequelae of psychological trauma from blast exposures)
   g) Biomedically-based design and acquisition standards for military equipment (materiel)
   h) Biomedically-based health hazard assessments
   i) Clinical current practices, interventions, surgeries, rehabilitative therapies
6) **Diagnostic measures / biomarkers**
   a) Innovations in self-reported symptom inventories
   b) Innovations in diagnostics based on observations by clinical staff
   c) Innovations in molecular markers of blast injury

d) Innovations in biomedical imaging measures of blast injury
e) Innovations in behavioral or functional tests for blast injury

7) Computational modeling and simulation of blast phenomena and blast injury
a) Deformable finite element modeling (FEM) of stresses and strains
b) Injury risk criteria applied to force-time histories from FEM
c) Incapacitation risk criteria applied to injury predictions from FEM
d) Shockwave modeling
e) Innovations in coupling between computational fluid dynamics (CFD) and FEM
f) Integration of computational models with blast sensors and other sensors (e.g, strain gauges or force transducers on cadavers or simulant manikins)

8) Characteristics comparison between blast-related TBI and blunt TBI

9) New technology and methods for blast injury research and medicine

Contributions from all countries, as well as from young investigators, are welcome.

General Information

Meeting title:
The 7th International Forum on Blast Injury Countermeasures (IFBIC 2023)

Organized by:
National Defense Medical College Japan (NDMC)
U.S. Army Medical Research and Development Command (USAMRDC)
U.S. Army Combat Capabilities Development Command (CCDC)

Important dates:

Abstract submission deadline:	~~February 28 (Tue), 2023~~ **10 March 2023**
Abstract acceptance notification:	March 17 (Fri), 2023
Preregistration deadline:	March 29 (Wed), 2023
Hotel reservation deadline:	April 28 (Fri), 2023
IFBIC 2023:	May 17 (Wed) – 19 (Fri), 2023

A closed meeting for organizing committee members will be held on May 22 (Mon).

Venue:
Keio Plaza Hotel Tokyo
2-2-1 Nishi-Shinjuku, Shinjuku-Ku, Tokyo 160-8330, Japan

Abstract Submission

Please prepare your abstract using the template provided at the conference website and attachment template. Abstract submissions should be emailed to the IFBIC 2023 secretary office no later than February 28 (Tue), 2023.

IFBIC 2023 secretary office: ifbic2023@ndmc.ac.jp

All submitted abstracts will be reviewed by the IFBIC 2023 Program Committee and notification of abstract acceptance will be made by March 17 (Fri), 2023.

Registration

Pre-registration is required for all participants, and participation will be limited by venue capacity. Please send the pre-registration form (available at the conference website) to the conference secretary office. The pre-registration deadline is March 29 (Wed), 2023.

"On-site" registration will not be offered.

Hotel Accommodations

For the participants who wish to stay at the Forum venue, the IFBIC 2023 secretary office plans to reserve a block of rooms. Please send the hotel reservation form posted at the conference website no later than April 28 (Fri) by email or fax to the IFBIC 2023 secretary office.
Email: ifbic2023@ndmc.ac.jp
Fax: +81-4-2996-2081

Keynote and Tutorial Speakers

Keynote speakers will be announced closer to the meeting date.

Get-Together and Forum Dinner

Please join the evening get-together on May 17 (Wed), and the Forum dinner on May 18 (Thu), for more conversation, socializing, and networking. Additional information to follow.

Meeting Organization Committee

General Chair:
LTC Jacob Johnson (USAMRDC, USA)

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Shunichi Sato (NDMC, Japan)

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Raj Gupta (USAMRDC, USA)

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Therese West (USAMRDC, USA)
Dr. Thomas DeGraba (USA)
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Meeting Secretaries:

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