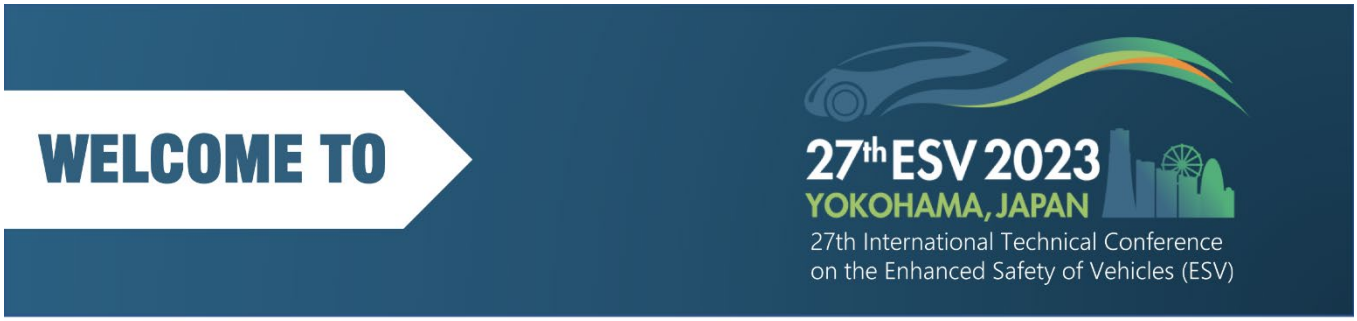

ENHANCED AND EQUITABLE VEHICLE SAFETY FOR ALL: TOWARD THE NEXT 50 YEARS

INTRODUCTION

The Enhanced Safety of Vehicles (ESV) program originated in 1970 under the North Atlantic Treaty Organization (NATO) Committee on the Challenges of Modern Society and was implemented through memorandums of understanding between the Governments of the United States, France, Germany, Italy, the United Kingdom, Japan, and Sweden. The participating nations agreed to develop experimental safety vehicles to advance the state-of- the-art technology in automotive safety engineering and to meet periodically to exchange information on their progress. Since its inception the number of international partners has grown to include the Governments of Canada, Australia, The Netherlands, Hungary, Poland, Republic of Korea, and one international organization the European Commission. A representative from each country/organization serves as a Government Focal Point in support of the ESV program.

In the interest of information exchange, the U.S. Department of Transportation, National Highway Traffic Safety Administration (NHTSA), distributes the Proceedings of the 27th International Technical Conference on the Enhanced Safety of Vehicles. The technical papers in this publication detail safety research efforts underway worldwide and share the common interest of reducing motor vehicle related fatalities and injuries.

The opinions, findings, and conclusions expressed in the publications are the original written work of the author(s) and not necessarily those of the U.S. Department of Transportation, National Highway Traffic Safety Administration. Traditional papers are accepted after the corresponding abstracts undergo technical review. To enhance the scientific content, several papers were accepted for peer-review and published in a special edition of ***Traffic Injury Prevention*** by Taylor and Francis Group. These papers are available to the public via 27th ESV 2023 -Yokohama, Japan (dot.gov) at no cost.

On behalf of the Conference Organizing Committees, we thank our international

participants for their dedication and support of the 27th ESV Conference and look forward to your future participation.

ESV 2023 NHTSA Organizing Committee

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U.S. Department of Transportation
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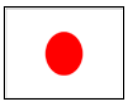	JAPAN | **Kenji Sato** Director, International Policy Planning Division, Road Transport Bureau Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan Email: hqt-esv2023@gxb.mlit.go.jp
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27th ESV TECHNICAL SESSION CHAIRS & CO- CHAIRS

Technical Session	Session Chair, Country	Session Co-Chair, Country
Protection of Vulnerable Road Users and Child Occupants	Suzanne Tylko, Canada	Yasuhiro Matsui, Japan
Safety Performance in Frontal and Rear Crashes	Stephen Summers, United States	Younghan Youn, Republic of Korea
Active Safety Systems for Crash Avoidance: New Systems and Technologies	Jost Gail, Germany	Genya Abe, Japan
Advances in Experimental and Mathematical Biomechanics and Human Injury Research	Dr. Matthew Craig, United States	André Eggers, Germany
Safety Performance in Side Impact and Rollover Crashes	Thomas Belcher, Australia	Dr. Cecilia Sunnevång, Sweden
Driving Automation Systems: Product Evolution; Safety Performance Assessment; and Real-World Deployment Challenges	Lori Summers, United States	Philippe Vezin, France
Advances in Crash Test Dummies, Instrumentation, and Data Analysis	Dr. Kevin Moorhouse, United States	Atsuhiro Konosu, Japan
One Step Ahead Integrated Vehicle Safety Technologies	Jac Wismans, The Netherlands	Dr. Matteo Rizzi, Sweden
Human Factors Considerations for ADAS and ADS Technologies	Peter Burns (Canada)	Stacy Balk, United States
Consumer-Focused Approaches to Promote Vehicle Safety in the Automotive Market	Andre Seeck, Germany	Michiel van Ratingen, Belgium
Opportunities and Challenges of Applying Artificial Intelligence (AI) and Machine Learning Techniques to Enhance Vehicle Safety	Marcus Wisch, Germany	Dee Williams, United States
Developing and Adapting Safety Assessment Approaches for Vehicles with ADS (SAE Levels 3, 4 and 5)	Peter Striekwold, The Netherlands	Toshiya Hirose, Japan
Restraint System Design and Performance Challenges: Addressing the Needs of Diverse Populations (Age, Gender, Stature)	Jim Hand, United Kingdom	Nils Lubbe, Sweden
New and Improved Field Data Collection, Analysis, and Benefits Assessment Methods	Rikard Fredriksson, Sweden	Tetsuya Niikuni, Japan

U.S. GOVERNMENT AWARD RECIPIENTS
Presented at the 27th ESV Conference - Yokohama Pacifico North

U.S. Government Special Awards of Appreciation

In recognition of and appreciation for outstanding leadership and special contributions in the field of motor vehicle safety

Professor Dr. Lothar Wech	Germany
Dr. Terunao Kawai	Japan
Dr. Koji Mizuno	Japan
Dr. Cecilia Sunnevång	Sweden
Deborah Hersman	United States
Jane Lappin	United States

U.S. Government Awards for Safety Engineering Excellence

In recognition of and appreciation for exceptional scientific contributions in the field of motor vehicle safety engineering and for distinguished service to the motoring public

Dr. Markus Hermle	Germany
Dr. Yuichi Kitagawa	Japan
Dr. Atsuhiro Konosu	Japan
Yoichi Sugimoto	Japan
Dr. YukouTakahashi	Japan
Dr. Katarina Bohman	Sweden
Rini Sherony	United States
Eric Heitkamp	United States
Dr. Thomas Dingus	United States

Student Design Competition finalist teams

ASIA PACIFIC

Coordinator: Masashi Yukawa

Project Title: *Development of Modified Dummy to Evaluate Rib Fracture for Elderly Occupants*
School: Nihon University
Competition Category: Dummy Design and Instrumentation

Project Title: *Fast Autonomous Cornering Without Causing Rollover Based on the Detection of Three-Dimensional Center of Gravity (D3DCG)*
School: Tokyo University of Marine Science and Technology
Competition Category: Automated Driving Systems

EUROPE

Coordinator: Peter Striekwold

Project Title: *Safety Risk-based Vehicle Control System, Applying V2V Communication Especially Considering Cyberattack Sensitive Network Performance Metrics (NPMs) and Vehicle Dynamics Parameters (VDPs)*
School: Budapest University of Technology and Economics
Competition Category: Vehicle Electronics Safety and Cybersecurity

NORTH AMERICA

Coordinator: Whitney Tatem

Project Title: *Interfacing Pedestrians, Automated Vehicles, and Connected Infrastructure: A Novel Application for Resolving Right-of-Way Conflicts*
School: Oregon State University
Competition Category: Pedestrian Crash Avoidance

Project Title: *SMART Hands: Hand Activity Analysis and Distraction Alerts Using a Multi-camera Framework*
School: University of California, San Diego
Competition Category: Distraction Prevention and Mitigation

***Project Title**: LIFE SAVIORS: Lighting Interface for Effective Signaling of Adjacent Vehicles in Occupant Risk Scenarios*

School: Virginia Tech

Competition Category: Advanced Driver Assistance Systems (ADAS)