

Introducing...

# HYPERSONIC DEFENSE

Conference and Exhibition

Arlington, VA, USA

2<sup>nd</sup> – 3<sup>rd</sup> November 2021

## Confirmed Speakers:

- Vice Admiral Jon Hill, Director, U.S. Missile Defense Agency
- Major General Frederic Parisot, Deputy Chief of Staff, Plans and Programmes, French Air Force
- Rear Admiral Tom Druggan, Program Executive, Sea-Based Weapons Systems, U.S. Missile Defense Agency
- Mike White, Assistant Director, Hypersonics, Under Secretary of Defense for Research and Engineering
- Dr. Jeffrey C. Boulware, Technical Director, Joint Integrated Air and Missile Defense Organization (JIAMDO)
- Radoslava Stefanova, Head of IAMD Section, NATO
- Dr. Eric Marineau, Program Officer, Hypersonic Aerodynamics, Office of Naval Research, U.S. Navy
- Dr. Russ Cummings, Managing Director, DOD HPCMP Hypersonic Vehicle Simulation Institute, U.S. Air Force Academy
- Sarah Popkin, High-Speed Aerodynamics Program Officer, U.S. Air Force Office of Scientific Research (AFOSR)
- Thomas Karako, Senior Fellow, Director, Missile Defence Project, Center for Strategic and International Studies (CSIS)
- Peter Huessy, Director of Strategic Deterrent Studies, Mitchell Institute for Aerospace Studies
- Dr. Phillip Ligrani, Eminent Scholar in Propulsion, Professor of Mechanical and Aerospace Engineering, University of Alabama, USA

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# Event Programme Day One

08.30 Registration and Networking

## 09.00 CHAIRMAN'S OPENING REMARKS

Dr. Phillip Ligrani, Eminent Scholar in Propulsion, Professor of Mechanical and Aerospace Engineering, University of Alabama, USA

### MISSILE DEFENCE CAPABILITIES

#### 09.10 OVERVIEW OF U.S. MISSILE DEFENSE CAPABILITIES

- Current BMD capabilities and developments made in recent years
- Current preparedness for hypersonic threat
- Current shortcomings in missile defense capabilities
- Emerging threats and challenges

Vice Admiral Jon Hill, Director, U.S. Missile Defense Agency



#### 09.50 RAYTHEON PRESENTATION

Senior Representative, Raytheon

10.30 Networking Coffee Break

#### 11.00 FRENCH MODERNISATION EFFORTS IN MISSILE DEFENCE

- Overview of French BMD capabilities
- Current modernisation efforts to defend against possible hypersonic threat
- Roadmap for the next few years

Major General Frederic Parisot, Deputy Chief of Staff, Plans and Programmes, French Air Force

#### 11.40 UK MISSILE DEFENCE CAPABILITIES AND UNDERSTANDING THE DEFENCE REQUIREMENTS FOR HYPERSONIC WEAPONS

- Overview of the Missile Defence Centre
- Reviewing the challenges of hypersonic defence capabilities
- Current shortcomings in UK BMD capabilities and developments being made
- Roadmap for UK missile defence

Invited: Paul Dack, Chief Scientist, Missile Defence Centre, Ministry of Defence, United Kingdom

#### 12.20 NATO BALLISTIC MISSILE DEFENCE ROADMAP

- Current NATO BMD capabilities
- Current threats being monitored
- Creating a coordinated defence capability to hypersonic weapons
- Where NATO's defence capabilities will be in the next few years

Radoslava Stefanova, Head of IAMD Section, NATO

13.00 Networking Lunch Break

#### 14.00 U.S. MISSILE DEFENCE PROGRESS FOR THE HYPERSONIC ERA

- How the U.S. DOD are progressing with their hypersonic defence capabilities?
- What the future threats look like
- Integrating new BMD systems
- Roadmap

Thomas Karako, Senior Fellow, Director, Missile Defence Project, Center for Strategic and International Studies (CSIS)

### SIMULATION AND RESEARCH OF HYPERSONIC WEAPONS

#### 14.40 TESTING HYPERSONIC WEAPON CAPABILITIES AND DEFENSES

- Research conducted by ONR on hypersonic weapons
- Challenges for test facilities to review defence systems against hypersonic weapons
- Collaboration needed to create strong defence systems

Dr. Eric Marineau, Program Officer, Hypersonic Aerodynamics, Office of Naval Research, U.S. Navy

15.20 Networking Coffee Break

#### 16.00 HYPERSONIC AEROTHERMODYNAMICS

- Research conducted on hypersonic weapon aerothermodynamics
- Heat generated on the hypersonic warhead
- Speeds of travel

Sarah Popkin, High-Speed Aerodynamics Program Officer, U.S. Air Force Office of Scientific Research (AFOSR)

#### 16.40 AEROSPACE APPLICATIONS OF NON-EQUILIBRIUM PLASMA TECHNOLOGY

- Current research on non-equilibrium plasma technology
- What applications are needed and need improvements
- Hypersonic era – NASA perspective

Dr. Isaiah M. Blankson, Senior Technologist for Hypersonics, NASA Glenn Research Center

#### 17.20 CHALLENGES OF HYPERSONIC VEHICLE SIMULATION

- What are the challenges of testing hypersonic vehicles?
- Challenges of simulating the flight of a hypersonic vehicle
- Create challenges of defending against a hypersonic vehicle
- Developments needed

Dr. Russ Cummings, Managing Director, DOD HPCMP Hypersonic Vehicle Simulation Institute, U.S. Air Force Academy

#### 18.00 CHAIRMAN'S CLOSING REMARKS

Dr. Phillip Ligrani, Eminent Scholar in Propulsion, Professor of Mechanical and Aerospace Engineering, University of Alabama, USA

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# Event Programme Day Two

08.30 Registration and Networking

## 09.00 CHAIRMAN'S OPENING REMARKS

Dr. Phillip Ligrani, Eminent Scholar in Propulsion, Professor of Mechanical and Aerospace Engineering, University of Alabama, USA

## FUTURE OF MISSILE DEFENCE – HYPERSONIC ERA

### 09.10 STREAMLINING ACQUISITION FOR HYPERSONIC WEAPON DEFENSE

- Importance in streamlining the acquisition process
- U.S. DOD hypersonic needs
- Strategic overview of the hypersonic defence system

Invited: Marcia Holmes, Deputy Director for Hypersonics, Directed Energy, Space and Rapid Acquisition, Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology)

### 09.50 CREATING WORLD'S BEST HYPERSONIC DEFENSE SYSTEM

- Current capability shortcomings
- R&D in creating an effective defence system from hypersonic weapons
- Importance of cooperation and collaborations

Mike White, Assistant Director, Hypersonics, Under Secretary of Defense for Research and Engineering

10.30 Networking Coffee Break

### 11.00 CREATING HYPERSONIC MISSILE DEFENCE CAPABILITIES

- The current threats being faced
- Future hypersonic threats
- Importance of creating an HMD capability

Rear Admiral Tom Druggan, Program Executive, Sea-Based Weapons Systems, U.S. Missile Defense Agency

### 11.40 JOINT AIR AND MISSILE HYPERSONIC DEFENSE CAPABILITIES

- Overview of the JIAMPO
- Importance of creating a joint Air and Missile defense system for hypersonic weapons
- Reviewing different concepts to fit different theatres

Dr. Jeffrey Boulware, Technical Director, Joint Integrated Air and Missile Defense Organisation (JIAMPO)

12.20 Networking Lunch Break

### 13.20 IMPACT ON WHAT THE US AND ALLIES NEED FOR MISSILE DEFENSE

- Overview of the amendments needed to track a hypersonic missile
- Current deterrent capabilities
- Challenges that will be faced with hypersonic weapons

Peter Huessy, Director of Strategic Deterrent Studies, Mitchell Institute for Aerospace Studies

### 14.00 IMPORTANCE OF SPACE CAPABILITIES TO COMBAT THREAT OF HYPERSONIC WEAPONS

- How hypersonic weapons will be a threat to space capabilities
- Creating a strong missile system for hypersonic weapons
- Defending against a hypersonic weapon

Invited: Dr. Roberta Envar, Chief Scientist, Space and Missile Systems Center, U.S. Space Force

14.40 Networking Coffee Break

### 15.10 DETECTION CAPABILITIES FOR HYPERSONIC WEAPONS

- What needs to change in detection systems for hypersonic weapons threat
- Operational requirements to improve detection
- Changes within NORAD during hypersonic era

Invited: Brian Lihani, Deputy Chief, Aerospace Warning Branch, North American Aerospace Defense Command (NORAD)

### 15.50 HOW THE HYPERSONIC ERA WILL CHANGE MISSILE DEFENCE SYSTEMS

- Current BMD systems compared to future BMD capabilities
- Acceleration of hypersonic capability race
- Importance of collaboration between public-private sectors to create hypersonic defence systems

Invited: Shawn Johnson, Joint and Multinational IAMD Lecturer, NATO School

### 16.30 CHAIRMAN'S CLOSING REMARKS

Dr. Phillip Ligrani, Eminent Scholar in Propulsion, Professor of Mechanical and Aerospace Engineering, University of Alabama, USA

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