Times are listed as Eastern Standard Time (EST)
"Presentation Title to be Announced" will be updated when we have a Distro A title.
* Indicates the presenter is a candidate for the Early Career Award

2022 National Fire Control Symposium Monday, 14 February 2022	
1000 - 1005	**Welcome & Announcements**
1005 - 1050	**Keynote: Mr. Robert Shevock Jr., SES** Executive Director, Program Executive Office for Integrated Warfare Systems
Advanced Technologies	
1050 - 1055	**Session Introduction**
1055 - 1115	**Mapping Artificial Intelligence to the Kill Chain**
1115 - 1135	**Force-Level Hardkill / Softkill Assignment using Partially Observable Markov Decision Processes**
1135 - 1155	**Deploying Meta-Models in Warfighter Laptops to Drive "Real-Time," On-Site Course-of-Action Recommendations that Solve Complex Kill Chain Solutions**
1155 - 1215	**Break**
1215 - 1235	**Elastic Computing for Targeting**
1235 - 1255	**Photonics and Quantum Science for Future Fire Control**
1255 - 1315	**Presentation Title to be Announced**
1315 - 1335	**Military Direct View Optics Looking Forward: Advanced Polymer Gradient Index Lenses and Next Generation Housings**
1335 - 1355	**Event-Verb-Event (EVE) Constructs to allow Machine Learned Systems to Solve Complex Kill Chain Problem**
Advanced Technologies *Rapid Fire Tech Highlight*	
1355 - 1410	**Presentation Title to be Announced**
1410 - 1430	**Break**
Space Systems	
1430 - 1435	**Session Introduction**
1435 - 1455	**Ultra-Wide Field-of-View Sensor Demonstration for Low Earth Orbit Applications**
1455 - 1515	***On-Orbit Dark Ship Target Recognition**
Joint Integrated Air & Missile Defense	
1515 - 1520	**Session Introduction**
1520 - 1540	**Defense Against Mass Raids: Two Geographical Case Studies**
1540 - 1600	**Demonstrating Tenets of an Integrated Combat System Force at U.S. INDOPACOM Valiant Shield 2020**
Joint Integrated Air & Missile Defense *Rapid Fire Tech Highlight*	

1600 - 1615	**Chance Favors the Prepared Mind: Digital Tools for Capability Portfolio Management**
1615 - 1620	**Transition to Networking Social**
1620 - 1730	**Networking Social on Remo**

Tuesday, 15 February 2022

	Track One
1000 - 1005	**Welcome & Announcements**
1005 - 1050	**Keynote:** Department of the Air Force Advance Battle Management System Cross Functional Team Lead
1050 - 1055	**Transition to Parallel Sessions**

Track One		Track Two	
Fire Control Platform Capabilities		**Directed Energy**	
1055 - 1100	**Session Introduction**	**1055 - 1100**	**Session Introduction**
1100 - 1120	***Applications of IRST Algorithms for Long-Range Target Detection**	**1100 - 1120**	***MIRORS – A Multispectral EO/IR Toolkit of HEL for Object Detection and Identification**
1120 - 1140	***Presentation Title to be Announced**	**1120 - 1140**	**Presentation Title to be Announced**
1140 - 1200	**Multiple Asset Allocation System Technologies for E-2D with Real-time Measurement of Integration for Naval Deployment (MA2STERMIND)**	**1140 - 1200**	***High Energy Laser Fire Control Decision Aid**
1200 - 1220	**Break**		
Unmanned & Autonomous Systems (Sensors, Weapons & Platforms, including Counter UAS)		**Electronic Warfare**	
1220 - 1225	**Session Introduction**	**1220 - 1225**	**Session Introduction**
1225 - 1245	***Presentation Title to be Announced**	**1225 - 1245**	**Defeating RF Cognitive Sensors**
1245 - 1305	***Presentation Title to be Announced**	**1245 - 1305**	***M&S Frameworks to Evaluate Cognitive Algorithm Performance for Enhanced IFC Preparation and Configuration**
1305 - 1345	**Presentation Title to be Announced**	**1305 - 1325**	***Passive Target Tracking in GPS-Denied Environments**
		1325 - 1345	***Aether Spy – Bringing a Digital Array to the Battle Space**
1345 - 1405	***Presentation Title to be Announced (UAS)**	**1345 - 1405**	**Presentation Title to be Announced**
Unmanned & Autonomous Systems (Sensors, Weapons & Platforms, including Counter UAS) *Rapid Fire Tech Highlight*		**1405 - 1425**	***Generating Realistic RF Test Data Through Style Transfer**

	Track One		Track Two	
1405 - 1420	Distributed Effects Chains in the Age of Autonomous Warfare and Unmanned Systems			
1420/1425 - 1440	Break			
Rapid Transition of New Technology to the Warfighter			**Multi-Domain Command & Control & Intelligence, Surveillance & Reconnaissance**	
1440 - 1445	Session Introduction		1440 - 1445	Session Introduction
1445 - 1505	Presentation Title to be Announced		1445 - 1505	RF Flare Systems Analysis
1505 - 1525	A Software defined Arbitrary Waveform Generator (SAWG) Model for a Multi-Mode Radar System		1505 - 1525	*Combined Radar Sensing and Networked Fire Control
1525 - 1545	*Common Display Architecture		1525 - 1545	Rapid Expeditionary Persistent Autonomous Coastal Surveillance (REPACS)
1545 - 1605	*Presentation Title to be Announced		1545 - 1605	Project Hypatia
1605 - 1625	Fourteen Tips to Increase Confidence in the Performance of Artificial Intelligence (AI)/Machine Learning (ML) Functions during the Five Stages of Development		**Multi-Domain Command & Control & Intelligence, Surveillance & Reconnaissance Rapid Fire Tech**	
			1605 - 1620	Sonar EMILY Redefining Search and Rescue (SAR)
1625 - 1630	Transition to Networking Social			
1630 - 1730	Networking Social on Remo			

Wednesday, 16 February 2022

	Track One			
1000 - 1005	Welcome & Announcements			
1005 - 1050	Keynote: Dr. Bill Melvin Deputy Director for Research & Director of the Sensors and Intelligent Systems Directorate, Georgia Tech Research Institute			
1050 - 1055	Transition to Parallel Sessions			
Track One			**Track Two**	
Mission Planning & Battle Management for Integrated Fire Control			**Sensor Resource Management/Sensor & Data Fusion**	
1055 - 1100	Session Introduction		1055 - 1100	Session Introduction
1100 - 1120	Battle Readiness Engagement Management (BREM) Prototype: A Wargaming Tool to Analyze "Realistic" Complex Kill Chains		1100 - 1120	*Angle Only Tracking with Reduced State Estimators; Single and Multi-Sensor Performance
			Sensor Resource Management/Sensor & Data Fusion *Rapid Fire Tech Highlight*	

Time	Session / Title	Time	Session / Title
1120 - 1140	*Central Processing Unit and Memory-Driven Real-Time Battle Management Configuration	1120 - 1135	MAGIC: Multi-Modal Fusion for Real-Time Target Detection
1140 - 1200	Progress on an Advanced Mission Planner (AMP) for Integrated Air and Missile Defense – Toward Defeating Coordinated Raids (U)	1135 - 1150	Presentation Title to be Announced
		Networked & Distributed Warfare	
Mission Planning & Battle Management for Integrated Fire Control _Rapid Fire Tech Highlight_		1150 - 1155	Session Introduction
1200 - 1215	Survivability Modeling for High Value Airborne Assets	1155 - 1215	*Presentation Title to be Announced
Combat ID			
1215 - 1220	Session Introduction	1215 - 1235	Integrated Combat System Architecture to Support Distributed Maritime Operations
1220 - 1240	*Non-Cooperative Combat Identification Efforts in AFRL Sensors Directorate		
1235/1240 - 1300	Break		
1300 - 1320	*Explainable Deep Learning based on Wavelet Transforms for Target Identification	1300 - 1320	Presentation Title to be Announced
1320 - 1340	Presentation Title to be Announced	1320 - 1340	Elektra Architecture and Impacts on the Future Naval Force Protection
1340 - 1400	Air to Surface Combat ID - Are These the Droids We're Looking For?	1340 - 1400	Presentation Title to be Announced
1400 - 1420	*Multi-Look SAR Classification: Training on Synthetic Data for Improved Generalization	**Application of Autonomy in Fire Control Systems**	
		1400 - 1405	Session Introduction
		1405 - 1425	Addition of Depth of Fire Considerations in Engagement Coordination
1420 - 1440	Presentation Title to be Announced	1425 - 1445	Evaluating and Improving the Robustness of DoD Machine Learning Systems
1440/1445 - 1500	Break		
1500 - 1520	Multi-Modality, Hybrid Machine Learning and Model-Based ATR for Real-Time Target Identification	1500 - 1520	Evaluation of Threat Level Using Artificial Intelligence

1520 - 1540	Harnessing Artificial Intelligence to Develop and Evaluate Systems: Assessing Real-World Robustness	**1520 - 1540**	*Scalable Engagement Planning Framework for Missile Defense
Combat ID *Rapid Fire Tech Highlight*		**Application of Autonomy in Fire Control Systems** *Rapid Fire Tech Highlight*	
1540 - 1555	Presentation Title to be Announced	**1540 - 1555**	Speed of Battle: Acceleration of Sensor to Shooter
1555 - 1610	Chicken Little Sensor Week 2022		
1555/1610 - 1615	Transition to Networking Social		
1615 - 1715	Networking Social on Remo		

Thursday, 17 February 2022

Track One	
1000 - 1005	Welcome & Announcements
1005 - 1050	Keynote: VADM Jon Hill Director, Missile Defense Agency
1050 - 1055	Transition to Parallel Sessions

Track One		Track Two	
Combat ID		**Live, Virtual, & Constructive Modeling & Simulation, Training & Wargaming**	
1055 - 1100	Session Introduction	**1055 - 1100**	Session Introduction
1100 - 1120	*Presentation Title to be Announced	**1100 - 1120**	European Test Bed: Adding Air to a Missile Defense Innovation Laboratory
1120 - 1140	*Presentation Title to be Announced	**1120 - 1140**	The Strategic Decomposition Method: Lessons from the Battle of Britain
1140 - 1200	Providing Earlier and More Robust Discrimination Results by Merging Multiple Sources	**1140 - 1200**	*Presentation Title to be Announced
1200 - 1220	Bad Pulse Mitigation Algorithm for Radar Frequency Jump Burst Processing	**1200 - 1220**	*Presentation Title to be Announced
1220 - 1240	Break		
Combat ID, Continued		**Weapons, Munitions & Engagement Alternatives**	
1240 - 1245	Announcements	**1240 - 1245**	Session Introduction
1245 - 1305	*Application of Neural Networks in the Signal Processor to Improve Discrimination Performance	**1245 - 1305**	SkyView Navigation System
1305 - 1325	Advancing CID Testing with DRFM Technology	**1305 - 1325**	*Damaged State Modeling of a Post Intercept Threat

Time	Session	Time	Session
1325 - 1345	***Interpretable Machine Learning for Detection and Identification**	**1325 - 1345**	**Presentation Title to be Announced**
1345 - 1405	**Break**		
Combat ID, Continued		**Hypersonics/Conventional Prompt Strike & Hypersonic Threat Defense**	
1405 - 1410	**Announcements**	**1405 - 1410**	**Session Introduction**
1410 - 1430	**Joint Multi-Platform Advanced Combat Identification (JMAC) Integration and Evaluation**	**1410 - 1430**	**Development of an Automated Hypersonic Aerodynamic Analysis & Optimization Framework**
1430 - 1450	***Generative Adversarial Network for Effective Data Augmentation**	**1430 - 1450**	**Hypervelocity Gun Weapon System Engagement of Surrogate Cruise Missile**
1450 - 1510	**Open Set Vibrometry ATR Based on Confidence Metrics**	**1450 - 1510**	**Presentation Title to be Announced**
Special Topic		**1510 - 1530**	***Distributed Estimation Requirement Derivations for Advanced Threats (DERDAT)**
1510 - 1610	**Presentation Title to be Announced**	**1530 - 1550**	**AI/ML for the Generation of HGV Targeting Probabilities**
		1550 - 1610	**Rapid Optimization of Hypersonic Boost-Glide Weapon Systems**
1610 - 1615	**Transition to Networking Social**		
1615 - 1715	**Networking Social on Remo**		