AMOS Conference 2022

PROGRAM

The AMOS Conference is an in-person event with virtual attendance options and kicks off with a number of virtual and in-person Technical Short Courses in various Space Situational/Domain Awareness-related disciplines. The three plenary program days open with Keynote Addresses and SSA Policy Forum discussions followed by Technical Presentations covering a range of broad topical areas relating to SSA/SDA, all streamed live to the virtual conference platform. Posters are available in digital format this year and are accompanied by on-demand presentation videos. A select number of posters are invited for in-person presentation during the evening poster sessions.

Please note all dates/times listed are Hawaii Standard Time (HST). Agenda is subject to change. Register Today.

Program at a Glance

TUE Sep 20	**Virtual Platform Open to Registered Attendees**
	On-Demand Launch | Digital Poster Presentations
SUN Sep 25 – TUE Sep 27	**EMER-GEN® Program** *(separate registration fee required)* On-site Registration
MON Sep 26	**Virtual Technical Short Courses** *(separate registration fee required)*
TUE Sep 27	Exhibitor Load-in **In-person Technical Short Courses** *(separate registration fee required)* **Welcome Reception |** *Co-sponsored by Boeing*
WED Sep 28	**Conference Opening & Cultural Invocation** **Opening Keynote Address**	*General John W. "Jay" Raymond* **SSA Policy Forum |** *Using SSA to Verify Future Space Security Agreements* **Technical Session |** *Machine Learning for SSA Applications* **Invited Talk |** *Col Marc Brock* **Technical Session |** *Space Situational/Domain Awareness	Sponsored by Peraton* **Technical Session |** *Space Debris* **Poster Reception |** *Co-sponsored by SAIC*
THU Sep 29	**Keynote Address |** *Ezinne Uzo-Okoro* **SSA Policy Forum |** *Is Orbital Carrying Capacity a Useful Metric?* **Invited Talk |** *Lt Gen Michael A. Guetlein* **Technical Session |** *Space-Based Assets* **Featured Presentation |** *EMER-GEN® Briefing* **Featured Presentation |** *2022 AMOS Student Award Winner's Technical Presentation* **Technical Session |** *Optical Systems & Instrumentation* **Technical Session |** *Astrodynamics* **Poster Reception |** *Co-sponsored by Northrop Grumman Corporation*
FRI Sep 30	**Keynote Address |** *Richard DalBello* **SSA Policy Forum |** *The European Perspective on Space Traffic Management* **Technical Session |** *Conjunction/Rendezvous Proximity Operations*

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Technical Session | *Atmospherics/Space Weather*
Technical Session | *Non-Resolved Object Characterization*
Invited Talk | *Col Raley & Col Roth*
Technical Session | *Cislunar SSA*
Conference Closing & Awards Ceremony
Pau Hana Reception | *Co-sponsored by L3 Harris*

Sunday 25 September – Tuesday 27 September

EMER-GEN®
The 5th annual EMER-GEN® is a joint initiative of the AMOS Conference and SGAC. The program is designed especially for young professionals and students enthusiastic about careers in space. Separate registration required. Visit www.emer-gen.com to learn more.

02:00 PM HST	05:00 PM HST	**ON-SITE REGISTRATION |** *Aulani Ballroom Foyer*

Monday 26 September

02:00 PM HST	05:00 PM HST	**ON-SITE REGISTRATION |** *Aulani Ballroom Foyer*

VIRTUAL TECHNICAL SHORT COURSES: *In-person and virtual short courses are offered this year. Separate registration fee required for each half-day course. Virtual short courses are "live" with the ability to interact with the instructor and attendees in real-time. Virtual courses will not be recorded. Access links will be provided to registrants closer to the course date.*

08:00 AM HST	12:00 PM HST	**VIRTUAL COURSE A |** Space Domain Awareness (SDA) Workshop
		VIRTUAL COURSE B | Space Weather Impacts on Orbital Operations
		VIRTUAL COURSE C | Telescopes and Optics for Ground-Based Optical SSA
12:00	01:00	**BREAK |** *Explore the AMOS Virtual Venue and Digital Poster Hall*
01:00	05:00	**VIRTUAL COURSE D |** LeoLabs Cloud-based SDA Platform
		VIRTUAL COURSE E | The International Framework for Space Behavior: Present Foundations and Future Prospects
		VIRTUAL COURSE F | In-orbit Data Processing - Writing SpaceCloud Applications

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Tuesday 27 September

07:00 AM HST	05:00 PM HST	**ON-SITE REGISTRATION** | *Aulani Ballroom Foyer*

IN-PERSON TECHNICAL SHORT COURSES: *In-person and virtual short courses are offered this year. Separate registration fee required for each half-day course. In-person short courses will not be livestreamed for virtual attendance, nor will they be recorded.*

08:00 AM HST	12:00 PM HST	**IN-PERSON COURSE 01** | Conjunction Assessment (CA) Risk Assessment **IN-PERSON COURSE 02** | The Dynamic Co-Evolution of Space Policy and Technology: Historical Overview and Lessons for Assessing Future Trends **IN-PERSON COURSE 03** | Deep Learning Methods for Space Domain Awareness **IN-PERSON COURSE 04** | Optical Modeling and Simulation for SSA/SDA **IN-PERSON COURSE 05** | Navigating the Sea of Space Law
12:00	01:00	**BREAK** | *Explore the AMOS Virtual Venue and Digital Poster Hall. Pick up lunch at one of the many locations on-site or next door at the Shops at Wailea.*
01:00	05:00	**IN-PERSON COURSE 06** | Demystifying Machine and Deep Learning **IN-PERSON COURSE 07** | Observing and Characterizing Space Debris **IN-PERSON COURSE 08** | An Introduction to Event-Based Sensors for SDA: A Hands-On Tutorial **IN-PERSON COURSE 09** | Space Law & The Space Law Games: Legal Liability and Mapping the Future in LEO Operations **IN-PERSON COURSE 10** | Astrodynamics for xGEO Space Domain Awareness
06:00	07:30	**WELCOME RECEPTION** | *Kahoolawe Lawn* Join us for an oceanfront reception at sunset as we welcome the AMOS ʻohana back to the island. *Co-sponsored by* BOEING

AMOS Conference 2022

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Wednesday 28 September

The three-day plenary program will be livestreamed in its entirety to the virtual conference platform, with on-demand playback available in 24-48 hours. All registered attendees are encouraged to visit the virtual Exhibit Hall and Digital Poster Hall to review materials and interact with sponsors and poster presenters.

06:00 AM HST	07:15 AM HST	**BREAKFAST AT LEISURE** | *Luau Gardens*
07:30	07:45	**CONFERENCE OPENING** | *Aulani Ballroom* **Leslie Wilkins**, President & CEO, Maui Economic Development Board, Inc. **CULTURAL INVOCATION** **WELCOME & INTRODUCTIONS**
07:45	08:15	**OPENING KEYNOTE ADDRESS**  **General John W. "Jay" Raymond** Chief of Space Operations United States Space Force
08:15	08:30	**KEYNOTE Q&A** | *Q&A sponsored by* KRATOS
08:30	09:30	**SSA POLICY FORUM | Using SSA to Verify Future Space Security Agreements** *As the international community strives to negotiate space security agreements, the question arises about how to verify actions on orbit and whether the agreed-to behavior is being followed. SSA can provide a technical foundation for verification; by understanding what SSA can do, states are better placed to negotiate behaviors that can be confirmed by outside observers. This panel will discuss the technical ranges of SSA programs and how they can be applied to verify future space security agreements.*
09:30	10:00	**EXHIBITION AND NETWORKING BREAK** | *Exhibit Hall + Conference Platform* Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.
09:30 AM HST	07:15 PM HST	**EXHIBITION HOURS FOR THE DAY**
10:00 AM HST	11:45 AM HST	**MACHINE LEARNING FOR SSA APPLICATIONS** | *Aulani Ballroom* Co-chaired by **Islam Hussein**, Trusted Space and **Charlotte Shabarekh**, MIT Lincoln Laboratory

Adaptive Stress Testing Applied To Space Domain Awareness Systems
Johnathan Tucker, University of Colorado Boulder

Development of a Versatile LiDAR Point Cloud Simulation Testbed for Advanced RSO Algorithms
Bruce Anderson, Advanced Scientific Concepts

General-sum Game Modeling of Generative Adversarial Networks for Satellite Maneuver Detection
Dan Shen, Intelligent Fusion Technology, Inc

Improving Satellite Maneuver Detection Using Artificial Intelligence Methods
Nicholas Perovich, MIT Lincoln Laboratory

Light Curve Completion and Forecasting using Fast and Scalable Gaussian Processes (MuyGPs)
Imene Goumiri, Lawrence Livermore National Laboratory

Recurrent Neural Network Autoencoders for Spin Stability Classification of Irregularly Sampled Light Curves
Gregory Badura, Georgia Tech Research Institute

Space Data Model Modernization for Proactive, Machine-Assisted Analytics
Alexandra Wright, Massachusetts Institute of Technology

11:45 AM HST	12:45 PM HST	LUNCH | *Lokelani Ballroom*
12:45	1:05	**INVITED TALK | Space Delta 2: Mission Federation and Realignment for a Contested and Congested Domain** | *Aulani Ballroom* **Colonel Marc A. Brock**, Commander, Space Delta 2, US Space Force
01:05	03:05	**SPACE SITUATIONAL/DOMAIN AWARENESS** | *Sponsored by* Peraton Co-chaired by **Moriba Jah,** University of Texas at Austin and **Danielle Wood,** Space Enabled Research Group, MIT Media Lab *18 SPCS Year in Review* **Diana McKissock**, U.S. Air Force *ExoALERT: 1 Year of AI-Enabled Space Traffic Management Services at GEO* **Christopher Ingram**, ExoAnalytic Solutions *Increasing Capabilities in a Growing Radar Network* **Owen Marshall**, LeoLabs *European Expert Centre providing Services and Support for Space Surveillance and Traffic Management* **Thomas Schildknecht**, Astronomisches Institut Universität Bern

Effectively Evaluating the Probability and Risk of Satellite Atmospheric Re-entry
Sean Goldsbrough, UK Space Agency

Advanced Space Surveillance with the Imaging Radar IoSiS
Simon Anger, German Aerospace Center (DLR)

Improving the Resolution of Low Earth Orbit Objects by Multi-Exposure Imaging and Deconvolution.
Vishnu Anand Muruganandan, University of Canterbury

A Sensor Network for Integrated Space Traffic Management for Australia
Timothy Bateman, UNSW Canberra Space

03:05 – 03:25 EXHIBITION AND NETWORKING BREAK | *Exhibit Hall + Conference Platform*

Relax and recharge at the Recharging Station, brought to you by PRIVATEER

03:25 – 04:25 **SPACE SITUATIONAL/DOMAIN AWARENESS (cont.)** | *Sponsored by* Peraton | *Aulani Ballroom*
Co-chaired by **Moriba Jah,** University of Texas at Austin and **Danielle Wood,** Space Enabled Research Group, MIT Media Lab

SSA/SDA Technology Policy Panel
Progress in building effective global cooperation in SSA/SDA will require contributions from engineering, policy, law, and cultural perspectives. This interactive panel discussion brings together thought leaders highlighting creative strategies for SSA & SDA. The ideas they share include ways to build international cooperation and learn from history.

Employing a Shared Space Information Sharing Ecosystem as a Mechanism for Promoting Constructive U.S. China Space Relations
Nathaniel Dailey, MITRE & Space Force Association

Partnering not Bossing: Better Leveraging of International Capabilities for Space Domain Awareness
Lauren Hale, The Aerospace Corporation

Developing Norms and Customary International Law for Space Situational Awareness
Bruce McClintock, RAND Corporation

A Survey of International Telecommunication Union (ITU) Space Station License Applications in the Geosynchronous Orbital Regime (GEO)
Thomas G. Roberts, Massachusetts Institute of Technology

04:25 – 05:40 **SPACE DEBRIS**
Co-chaired by **Heather Cowardin,** NASA and **Carolin Frueh,** Purdue University

Stability of the LEO Environment as a Dynamical System
Daniel Jang, Massachusetts Institute of Technology

Report on 2021 COSMOS 1408 Event and Impact to Space Domain Awareness Mission
Christian Ramos, 18th Space Control Squadron/Omitron Inc

LEO Capacity Modeling for Sustainable Design
Mark Sturza, 3C Systems Company

Long-Term Evolution of Debris Clouds in Low Lunar Orbit
Nathan Boone, Air Force Institute of Technology

A Statistical Approach to Identify Fragmentation Epoch from a Single Fragment Surveillance Radar Observation
Marco Felice Montaruli, Politecnico di Milano

05:45 07:15 **EXHIBITION AND POSTER SESSION** | *Exhibit Hall*
Posters co-chaired by **Darren McKnight,** LeoLabs and **Matthew Stevenson,** LeoLabs

Meet select poster presenters while enjoying a cocktail and interacting with exhibitors and fellow attendees.

Co-sponsored by SAIC

Thursday 29 September

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06:00 AM HST 07:15 AM HST **BREAKFAST AT LEISURE** | *Luau Gardens*

07:30 08:00 **KEYNOTE ADDRESS**

Ezinne Uzo-Okoro
Assistant Director for Space Policy
White House Office of Science and Technology Policy

08:00 09:00 **SSA POLICY FORUM | Is Orbital Carrying Capacity a Useful Metric?**
With the increasing deployment of very large satellite constellations, we

		are seeing a fundamental change in the way we use the space environment - calling into question our understanding of the carrying capacity of specific orbital regimes or regions. There are research efforts underway to define and apply approaches to assessing orbital capacity. This panel will discuss those approaches, and the work needed to understand how orbital capacity can be applied in behavioral and operationally relevant ways to improve the safe and sustainable use of LEO for all operators.
09:00	09:40	EXHIBITION AND NETWORKING BREAK | *Exhibit Hall + Conference Platform* Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.
09:00 AM HST	07:00 PM HST	EXHIBITION HOURS FOR THE DAY
09:40 AM HST	10:05 AM HST	**INVITED TALK** **Lieutenant General Michael A. Guetlein,** Commander, Space Systems Command, US Space Force
10:05	11:20	**SPACE-BASED ASSETS** Co-chaired by **John Ianni,** Air Force Research Laboratory and **Pat Patterson,** Space Dynamics Laboratory *Pole-Sitter Based Space Domain Awareness* **Elozor Plotke**, LinQuest Corporation *Formation Flying and Change Detection for the UNSW Canberra Space 'M2' Low Earth Orbit Formation Flying CubeSat Mission* **Melrose Brown**, UNSW Canberra Space *On Orbit Sensing of Objects Beyond GEO* **Rachel Derbis,** Air Force Institute of Technology *Sensor Management for Space-based Sensing Constellations* **Joshua Davis**, Defence Science and Technology Laboratory *Hyperspectral Thermal Imaging CubeSat for SSA Applications* **Miguel Nunes**, Hawaii Space Flight Laboratory
11:20	11:30	**FEATURED PRESENTATION | *EMER-GEN® Briefing*** | *Aulani Ballroom*
11:30	11:45	**2022 AMOS STUDENT AWARD WINNER**
11:45 AM HST	12:45 PM HST	LUNCH | *Lokelani Ballroom*
12:45	03:15	**OPTICAL SYSTEMS & INSTRUMENTATION** | *Aulani Ballroom* Co-chaired by **Jeff Sherk,** Aerospace Corporation and **Stacie Williams**, Air Force Office of Scientific Research *Adaptive Optics for Meter-Class Telescopes* **Michael Hart**, HartSCI LLC

Operational Acceptance and Employment of the Space Surveillance Telescope in 2022
Jonathan Hutfilz, Space Systems Command

Augmentation of a Southern Hemisphere Deep Space Bistatic Radar with Small Optical Systems to Detect Near Earth and other Space Objects.
Ed Kruzins, UNSW Canberra Space

Ground-based Planetary Radars: Current and Future Prospects in the Cislunar Arena
Joseph Lazio, Jet Propulsion Laboratory, California Institute of Technology

Magdalena Ridge Observatory Interferometer: An Overview of an Astrophysics Facility for Supporting SDA Efforts
Michelle Creech-Eakman, New Mexico Tech/MRO Interferometer

On-orbit Optical Detection of Lethal Non-Trackable Debris
Andrew Nicholas, Naval Research Laboratory

Space Domain Awareness in a Photon Starved Environment
Stuart Jefferies, Georgia State University

All-Sky Electro-Optical Tracking of Mega-Constellations in Low Earth Orbit
Cam Key, Numerica Corporation

Event-Based Sensor Multiple Hypothesis Tracker For Space Domain Awareness
Rachel Oliver, U.S. Space Force

Ultrafast Image Retrieval from a Holographic Memory Disc for High-Speed Operation of a Shift, Scale, and Rotation Invariant Target Recognition System
Selim Shahriar, Northwestern University

Automatic Detection and Characterization of Closely-Spaced Objects
Brandoch Calef, The Boeing Company

03:15	03:35	EXHIBITION AND NETWORKING BREAK | *Exhibit Hall + Conference Platform*
03:35	05:20	**ASTRODYNAMICS** | *Aulani Ballroom* Co-chaired by **John Gaebler,** AFRL Maui, and **Tom Kelecy,** The Stratagem Group *AURORAS: The Next Evolution of Orbit Determination Using Passive Optical Observations* **Jeffrey Bloch**, Applied Research Associates

Generalized Labeled Multi-Bernoulli Filter with Kernel-based Ensemble Gaussian Mixture Filtering for Orbit Determination with Sparse Data
Benjamin Reifler, The University of Texas at Austin

Geometric Solution to Probabilistic Admissible Region (G-PAR)
Utkarsh Mishra, Texas A&M University

Rapidly and Automatically Estimating Reachability of Electric Propulsion Spacecraft
Prashant Patel, Institute for Defense Analyses

A Convex Optimization-based Approach to Maneuver Detection and Estimation
Laura Pirovano, University of Auckland, Te Pūnaha Ātea - Space Institute

Catalogue-based Atmosphere Uncertainty Quantification
Alejandro Cano Sanchez, GMV

Improvements to the SGP4 Propagator (SGP4-XP)
Timothy Payne, USSF/SPOC/DCG-T/S9I

05:30 07:00 **EXHIBITION AND POSTER SESSION** | *Exhibit Hall*
Posters co-chaired by **Darren McKnight,** LeoLabs and **Matthew Stevenson,** LeoLabs

Meet select poster presenters while enjoying a cocktail and interacting with exhibitors and fellow attendees.

Co-sponsored by NORTHROP GRUMMAN

Friday 30 September

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06:00 AM HST 07:15 AM HST **BREAKFAST AT LEISURE** | *Luau Gardens*

07:30 08:00 **KEYNOTE ADDRESS** | *Aulani Ballroom*

Richard DalBello
Director, Office of Space Commerce
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

08:00	09:00	**SSA POLICY FORUM | The European Perspective on Space Traffic Management** *While space traffic management has been a hot policy topic for the last several years, the conversation has largely been driven by the perspective from the United States. The European Union recently announced their strategy on STM, which is billed as a different approach than that from the United States. This panel will discuss the current EU thinking on STM, how it is similar or different from that of the United States or other countries, and what the prospects are for cooperation or competition going forward to develop an international STM regime.*
09:00	09:30	EXHIBITION AND NETWORKING BREAK | *Exhibit Hall + Conference Platform* Explore the Exhibit Hall on-site and online. Interact with our conference partners, view demos, access resources, schedule meetings, and more.
09:30 AM HST	03:00 PM HST	EXHIBITION HOURS FOR THE DAY
09:30 AM HST	10:45 AM HST	**CONJUNCTION/RPO** | *Aulani Ballroom* Co-chaired by **Zach Funke,** AFRL Maui and **Jim Shell,** Novarum Tech LLC *Conjunction Assessment: NASA Best Practices and Lessons Learned* **Lauri Newman**, NASA *Design And Development of a Decision Support Tool for Risk Assessment & Manoeuvre Planning in Collision Avoidance* **David Shteinman**, Industrial Sciences Group *Opportunistic Conjunction Screening with Maneuvering Spacecraft* **Max Geissbuhler**, Numerica Corporation *Predicted Intent Inferred from Real-time Rendezvous and Proximity Behavior* **Thomas Kelecy**, The Stratagem Group *Analysis of Orbit Residual Behavior to Determine Contact in Rendezvous and Proximity Operations at Geosynchronous Orbit* **Phillip Cunio**, ExoAnalytic Solutions
10:45	11:45	**ATMOSPHERICS/SPACE WEATHER** Co-chaired by **Randall Alliss,** Northrop Grumman Corporation

and **Tom Berger,** University of Colorado/Space Weather Technology, Research, and Education Center (SWx TREC)

The impact of space weather disturbances on very low Earth orbit (VLEO) satellites
Vishal Ray, University of Colorado Boulder

Impact of Space Weather on Space Assets and Satellite Launches
Julia Briden, Massachusetts Institute of Technology

Validation of Atmospheric Characterization and Prediction over Haleakala during the Laser Communications Relay Demonstration
Mary Ellen Craddock, NGC

A High Power, Large Aperture Doppler He Lidar for Upper Atmospheric Sensing
Peter Dragic, University of Illinois at Urbana-Champaign

11:45 AM HST	12:25 PM HST	LUNCH | *Lokelani Ballroom*

12:25	02:30	**NON-RESOLVED OBJECT CHARACTERIZATION** | *Aulani Ballroom*

Co-chaired by **Zach Gazak,** Odyssey and **Emily Gerber,** Stratagem Group

Shadow Imaging of Geostationary Satellites: experimental demonstration with accurate polychromatic modelling of diffraction and atmospheric disturbances
Hanae Labriji, DTIS, ONERA, Université Paris Saclay, F-91123 Palaiseau – France

Frequency Analysis of Event Camera Data for Non-Resolved Objects
Conor Benson, University of Colorado Boulder

Reformulating Compressed Sensing to be used with Semi-Resolved Images and Light Curves for Space Object Imaging: LEO and High Altitude
Carolin Frueh, Purdue University

Spectral Characterization of Modern Spacecraft Materials
Heather Cowardin, NASA

Spectropolarimeter for Satellite Identification
Louis Lischwe, Delft University of Technology

Space Object Identification and Change Detection Methods for the Cislunar Orbit Regime
Tamara Payne, Applied Optimization, Inc.

Remote Sensing of Satellite Activity through Optical and Infrared Temporal Differential Spectrophotometry Informed by Analysis of Noise
John Kielkopf, University of Louisville

02:30	02:50	EXHIBITION AND NETWORKING BREAK | *Exhibit Hall + Conference Platform*
02:50	3:20	**INVITED TALK | Challenging Space: Strategic S&T from LEO to Cislunar** | *Aulani Ballroom* **Colonel Jeremy A. Raley,** Division Chief, Space Rapid Capabilities Office, US Air Force **Colonel Joseph J. Roth**, Director, Innovation and Prototyping Directorate and Commander, Space Systems Center, US Air Force
03:20	05:20	**CISLUNAR SSA** Co-chaired by **Channing Chow,** Cloudstone Innovations LLC and **Jaime Stearns**, AFRL Space Vehicles Directorate *An Analytical Approach for Cislunar Information Gain* **Patrick Miga**, University of Colorado *Probabilistic Initial Orbit Determination and Object Tracking in Cislunar Space Using Optical Sensors* **Islam Hussein**, Trusted Space, Inc. *Optical Observation Regions in Cislunar Space Using the Bicircular Restricted Four Body Problem Geometry* **Carolin Frueh**, Purdue University *Cislunar SDA with Low-Fidelity Sensors and Observer Uncertainty* **Joshua Block**, Air Force Institute of Technology *Optimal Cislunar Architecture Design Using Monte Carlo Tree Search Methods* **Michael Klonowski**, University of Colorado at Boulder *Classifying State Uncertainty for Earth-Moon Trajectories* **Ryan Coder**, The Aerospace Corporation *Capacity-based Cislunar SDA Architecture Optimization* **Josh Wysack**, Ball Aerospace *Revisit rate schedules for tracking cislunar NRHO and Halo targets* **Darren Thornton**, Air Force Institute of Technology
05:20	05:30	**CONFERENCE CLOSING & AWARDS CEREMONY** In collaboration with the Space Surveillance Technical Committee of the American Astronautical Society (AAS), the AMOS Conference recognizes outstanding efforts in the field of Space Situational/Domain Awareness by presenting the fifth annual AMOS Conference Best Paper and Student Awards.

05:30	07:00	**PAU HANA RECEPTION**	*Mei Court* Commemorate the end of the 23rd AMOS Conference with live music, cocktails, and friends as we say *Aloha* and *A Hui Hou* *Sponsored by* L3HARRIS™ FAST. FORWARD.

Digital Poster Presentations | *Access Starts Sep 20*

All posters are available in digital format this year and are accompanied by brief on-demand presentation videos in the virtual conference platform's Poster Hall. Interact with poster presenters on discussion boards and via video chat during optional Office Hours. The online Poster Hall opens Sep 20.

A select number of posters are invited for in-person presentation during the evening Poster Sessions, as indicated with a (**) double asterisk.

Machine Learning for Satellite Characterisation
Alexander Agathanggelou, Defence Science and Technology Laboratory**

Passive Ranging Solution Design to Improve CA Services
Alberto Agueda, GMV

Quality Assurance for the DebriSat Project
Samantha Allen, University of Florida

From Ozone Depletion to Orbital Debris: Applying Lessons Learned from the Montreal Protocol to Orbital Debris
Asha Balakrishnan, Science and Technology Policy Institute

Anisoplanetic Speckle Imaging of Extended Objects through Atmospheric Turbulence using ARES
Fabien Baron, Georgia State University

ARES: A Versatile Benchtop Testbed for Evaluating Techniques for Imaging through Atmospheric Turbulence
Fabien Baron, Georgia State University **

Characterization of On-Orbit Conjunction Data to Support Development of Norms
Kreston Barron, Georgia Institute of Technology**

Updates on the Visible Spectroscopic Atlas of Geostationary Satellites
Adam Battle, University of Arizona **

Imperfect Information Games and Counterfactual Regret Minimization in Space Domain Awareness
Tyler Becker, University of Colorado Boulder **

Toward Persistent Coverage of the Cislunar Sphere: Evaluation of a Space-Borne Architecture
Marcus Bever, ExoAnalytic Solutions

Angular Velocity Vector Determination of Spacecraft in Flat-Spin Attitude States using Inverse Modelling with a Synthetic Light Curve Model
Laurence Blacketer, Northern Space & Security Ltd.

The Global Network On Sustainability In Space (GNOSIS): Activities, Initiatives, and Future Endeavours
James Blake, University of Warwick

Space and Ground-Based SDA Sensor Performance Comparisons and Optimizations
Amelia Bloom, Ball Aerospace **

Lightweight Image Processing Toolpack for Low-power and Low-cost Optical SST Triangulation Stations for Cataloguing in LEO/HLEO Regime
Konrad Bojar, KB-Innotech

An Autonomous Geographically Distributed Ground Network that Scales
Matthew Britton, Aerospace Corporation **

Analysis of DebriSat Data Collection and Procedures.
Elizabeth Campa, University of Florida

Stingray: Photometric Survey of the GEO Belt
Tanner Campbell, University of Arizona**

Space Weather Monitoring and Anomaly Attribution with the GPS Constellation
Matthew Carver, Los Alamos National Laboratory **

Distributed Wideband All-Sky Passive RF for SDA
Philip Cheney, Battelle

Cislunar Orbit Determination: Improvements in Uncertainty Realism and Data Fusion
C. Channing Chow II, Cloudstone Innovations LLC **

Synthetic Dark Current Correction for Space Situational Awareness Sensors
Tom Chrien, Millennium Space Systems**

An Automated System to Discover and Track Unknown Geosynchronous Objects using a Ground-based Optical Telescope
Gemma Cook, University of Liverpool

SDA Environmental Toolkit for Defense -- Enabling Space Environment and Weather Support for SDA Ground-based Optical and Radar Sensors
Jeffery Cox, The Aerospace Corporation

Target Behaviour Analysis based on Bistatic Radar Systems
Simão da Graça Marto, University of Strathclyde**

A Space Critical Infrastructure Assessment Framework for Commercial Operator Risk Mitigation, Enhanced Global Space-Systems Resilience, and a Sustainably Viable Space Economy
Nathaniel Dailey, MITRE & Space Force Association

Projected Orbital Demand and LEO Environmental Capacity
Andrea D'Ambrosio, Massachusetts Institute of Technology **

Feasibility of a Virtual Constellation using Small Aperture, Wide Field of View Optical Systems for Space Domain Awareness and Applications
Siddharth Dave, York University**

Data-Driven Lifetime Risk Assessment and Mitigation Planning for Large-Scale Satellite Constellations
Paul Diaz, SpaceNav

Using Machine Learning to Process Neuromorphic Sensor Data from the International Space Station
Stefan Doucette, MITRE corporation **

Error Modeling of SSN Radars for Improved Covariance Realism
Daniel Dowd, USSF, HQ Space Operations Command (SpOC) **

Survey of Geosynchronous Satellite Polarization Signatures
Blake Eastman, United States Air Force Academy **

A Systems Theory Approach for Evaluating the Cascading Collision Potential of Orbital Shells
Valentin Eder, Space Analyses GmbH **

Tasking, Estimation, and Maneuver Detection for Large Populations of Cislunar Space Objects
Samuel Fedeler, University of Colorado Boulder

Data-driven Object Detection with Event-based Sensors for Space Domain Awareness
Panna Felsen, The Aerospace Corporation**

Continuing Progress on a Compact, Extremely Accurate Star Tracker
Greg Finney, IERUS Technologies

A Consolidated Multi-State Orbit Estimation Paradigm for Improved RSO Track Custody
Emily Gerber, Stratagem Group, Inc**

The Internet Of Things - Astronomical (IoTA): A New Architecture For A Global SDA Capability
Lauren Glina, UNSW Canberra Space **

U.S. Commercial Space Regulations and the Three-Legged Stool of Policy Objectives
John Goehring, National Geospatial-Intelligence Agency

Novel Low-Cost Lightweight Laser Retroreflectors for a Sustainable New-Space Era
David Gooding, Lumi Space Ltd.**

Monitoring and Managing Space Weather Impacts to Satellite Constellations
Janet Green, Space Hazards Applications, LLC **

Satellite Detection and Tracking Capabilities of the Australian National University
Doris Grosse, Australian National University**

Fitting Doppler Predictions to Observations for High Precision Orbit Estimation Using Geometrically and Temporally Diverse Observations
Jake Gunther, Utah State University

Polarimetry and Spectroscopy on Geostationary Satellites with the Nordic Optical Telescope
Per Hägg, Swedish Defence Research Agency **

Optimal Sensor Planning for SSA using System Identification Concepts
Per Hägg, Swedish Defence Research Agency

Advances of ArianeGroup Capabilities for Laser Optical Observation of LEO Objects
Laurent Hennegrave, ArianeGroup

Optimization Framework for Active Debris Removal Missions with Multiple Selected Targets
Joanna Hon, Turion Space Corp.

Risk-Based Decision-Making for Space Traffic Management
Islam Hussein, Trusted Space, Inc.**

Uplooking Local Resolution Due to Atmospheric Turbulence
Amber Iiler, KBR, INC**

Identifying Near-Earth Objects on Wide-Field Astronomical Surveys Using a Convolutional Neural Network
Belén Yu Irureta-Goyena, EPFL

High Resolution Imaging of Satellites and Objects in Space with IoSiS
Matthias Jirousek, German Aerospace Center (DLR) **

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James Jones, Northrop Grumman

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Aurelio Kaluthantrige, University of Strathclyde**

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Apoorva T Karra, The University of Texas at Austin **

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Ellis King, Univeristy of Colorado

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Darin Koblick, Raytheon

Cislunar Orbit Determination Benefits of Moon-Based Sensors
Darin Koblick, Raytheon **

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Chris Lee, Rochester Institute of Technology **

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A Map of the Statistical Collision Risk in LEO
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Ian McQuaid, U.S. Air Force **

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Rishi Patel, United States Air Force **

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