



7 NOV 2024
PALO ALTO, CA



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THE EVTOL SHOW USA

SCALING UP eVTOL PRODUCTION TO MEET THE DEMANDS OF COMMERCIAL ROLL OUT

LIGHTWEIGHT MATERIALS

MANUFACTURING

BATTERY THERMAL MANAGEMENT

AVIONICS

BATTERY SYSTEMS & TECHNOLOGY

CHARGING INFRASTRUCTURE

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WELCOME TO THE **EVTOL SHOW USA 2024**

THE USA'S PREMIER TECHNICAL GATHERING OF EVTOL INDUSTRY LEADERS, INNOVATORS AND ENGINEERS

JOIN 400+ EVTOL PROFESSIONALS

The eVTOL SHOW USA equips manufacturers and their suppliers with the cutting-edge tools, technologies, and connections needed to accelerate commercial roll-out. Explore advanced materials, innovative systems, and state-of-the-art processes that provide powerful manufacturing advantages and operational insights. Gain a competitive edge and ensure your operations thrive in an evolving, digitally intelligent landscape. **Join us to discover the future of eVTOL manufacturing and drive the industry forward.**

60+ INDUSTRY EXPERT SPEAKERS

Do you have ground-breaking insights and innovative solutions in the eVTOL industry? We invite you to join our line-up of 40+ expert speakers at this year's eVTOL Smart Manufacturing 4.0 USA Summit. Submit your presentation and become a part of our thought leadership community, where you can share your knowledge, engage with industry leaders, and drive the future of aerospace manufacturing.

Don't miss this opportunity to showcase your expertise and contribute to the conversation on the latest advancements and trends in eVTOL technology. Submit your presentation today and help shape the future of the industry!

1-DAY, TECHNICAL AGENDA

The global eVTOL manufacturing landscape is undergoing rapid transformation, and the industry needs ingenuity, collaboration and innovation to scale-up and roll-out. With an interactive technology showcase, thought-provoking presentations, and strategic networking sessions, the eVTOL SHOW USA empowers manufacturing leaders and their suppliers to navigate this evolution and address shared challenges to drive long-term growth.

40+ EXHIBITOR SHOWCASE

Seize the opportunity to sponsor and exhibit at the eVTOL SHOW 2024 and position your company at the forefront of the aerospace industry. Our Technology Showcase offers unparalleled visibility and access to key decision-makers, industry leaders, and potential clients.

By sponsoring or exhibiting, you can demonstrate your innovative solutions, connect with top-tier professionals, and drive your business forward. Highlight your cutting-edge technologies and establish your brand as a leader in the rapidly evolving eVTOL sector.

SHAPING THE FUTURE OF THE EVTOL LANDSCAPE

Join North America's premier assembly of eVTOL designers, engineers, and senior executives as we concentrate on scaling up eVTOL production at the continent's largest technical conference and exhibition for eVTOL professionals. This distinguished event will feature a series of in-depth case study presentations, interactive panel discussions, and exclusive networking opportunities, providing a unique platform for industry experts to collaborate and innovate.

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CUTTING-EDGE INSIGHT DELIVERED BY EXPERTS AND THOUGHT LEADERS

Our programs are diligently researched and curated in partnership with the eVTOL community, to ensure they address the most pertinent current challenges and key investment areas. This level of detail is part of our pioneering approach to content and ensures that we attract the highest level of attendees.



Nicolas Zart
Founder
| Electric Air Mobility, LLC



Bryan Bernhard
Chief Growth and Infrastructure Officer
| Archer Aviation



Martin Peryea
CEO
| Jaunt Air Mobility



George Kivork
Head of U.S. State & Local Policy
| Joby Aviation



Eric Allison
Chief Product Officer
| Joby Aviation



Ilias Belharouk
Head of Electrification Section | Oak Ridge National Laboratory



Vivek Chugh
Manager of Guidance, Navigation & Controls
| Pivotal Aero



Gina Dew
Director, Government and Community Relations
| Tampa International Airport



John Piasecki
President & CEO
| Piasecki Aircraft Corp



Bert Ganoung
Aircraft Noise Abatement Manager | San Francisco International Airport



Venkat Viswanathan
Technical Consultant
| QuantumScope



Hugh Kelly
VP Marketing
| Alakai Technologies



Tom Burns
Bd. Cert. INCE, Senior Acoustical Engineer & Lab Manager | Soundcoat



Aaron Koopman
Director of Airworthiness and Certification
| Collinear Group



Santh Sathya
Founder and CEO
| LuftCar



Soumya Datta
Head of Engineering
| Pivotal Aero



Matt McAlonis
Aerospace Engineer Fellow
| TE Connectivity



Manoj Singh
Executive VP
| Ramco Systems



Sascha Heinecke
Director Sales Industry Solutions
| AVL List GmbH



Dennis Wang
Lead Systems Engineer
| Lyten



DeWayne Howell
Application Development and Expert Service Field Manager | Toray Advanced Composites



Bret Trimmer
Application Engineering Manager
| NEOGRAF Solutions



Peter Blume
President and Founder
| Bloomy



Dave Amet
Business Development Manager
| Amphenol



Manal Habib
CEO
| MightyFly



Niklas Volbers
Director Advanced Research
| VAC Magnetics, LLC



Joe Orlando
Sales Engineer
| Speedgoat



Declan Byrne
Senior Director - Aerospace & Defense, APAC & LATAM
| PTC



Samuel Ingalls
Principal
| Barich



Rob Murano
Senior Director of Product Development & Commercialization
| Coherent Corp.



Doron Merdinger
CEO & Founder
| Droni Aerospace



Arnaud Gug
Director of Product Management
| EJOT ATF



Mike Di Cosola
CEO
| Vertiport Infrastructure Systems Corp (VISC)



Brent Klavon
Chief Strategy Officer
| ANRA Technologies



Torrie Meliska
Vertiport & Infrastructure Partnerships Manager
| Wisk



Jonathan Lovegren
Chief of Autonomy & Airspace Integration
| Wisk



Felipe Varon
Founder & CEO
| VARON Advanced Air Mobility

CONFERENCE TOPICS

eVTOL Market And Value Chain

The eVTOL industry is rapidly developing, and understanding its value chain and key use cases is crucial for stakeholders. This topic explores the entire value chain of eVTOLs, from design and manufacturing to deployment and operation. It includes an in-depth analysis of market trends, key developments, and the challenges of building and running the necessary ground infrastructure, including overcoming the "Not In My Backyard" syndrome.

Automation And Digital Manufacturing

Automation and digital processes are transforming eVTOL manufacturing. This topic focuses on the need for advanced, automated, and digital manufacturing processes, managing the extensive use of automation, and adopting the latest tools and processes in production. It also examines the influence of automotive industry practices and biomimicry in cabin design.

Environmental And Operational Sustainability

Achieving environmental sustainability is a key goal for the eVTOL sector. This topic explores how to design eVTOLs to meet environmental sustainability requirements, noise and vibration mitigation strategies, and learning from experiences in the EV and grid storage spaces. It also addresses managing lifecycle challenges in battery technology and ensuring sustainable operations.

Airspace And Traffic Management

Effective airspace management is essential for the successful integration of eVTOLs into urban environments. This topic addresses how eVTOLs will be handled in the airspace, including the creation of a new low altitude air traffic management system. It also explores the incorporation of multiprotocol label switching for faster connections and the potential necessity of IFR for short flights, along with the challenges of establishing rooftop vertiports.

Advanced Propulsion Systems

Innovation in propulsion systems is critical for the performance and efficiency of eVTOLs. This topic delves into the latest advancements in electric propulsion technologies, hybrid systems, and new materials that enhance propulsion efficiency. It also examines the challenges of thermal management and noise reduction in propulsion systems

Certification And Safety

Navigating the certification process and ensuring safety is paramount in the Evtol industry. This topic covers the certification process and handling of safety concerns, including coordination with the FAA and EASA, the use of performance-based requirements, and overcoming differences in certification standards. It also examines compliance with RTCA DO-311, SAE AIR6897, and FAA AC 20-184, as well as approaches to managing thermal runaway risks in lithium-based chemistries.

Infrastructure Development And Urban Integration

The successful deployment of eVTOLs requires extensive infrastructure planning and development. This topic explores the challenges and solutions related to urban integration, including the development of vertiports, ground infrastructure, and charging stations. It also covers regulatory and zoning issues, and strategies for ensuring community acceptance.

Pilot Training And Simulation

Training pilots for eVTOL operations is essential for safety and efficiency. This topic covers simulation for eVTOL pilot training, including the use of full-motion flight simulators and mixed-reality simulators. It emphasizes the importance of advanced training tools and techniques to prepare pilots for the unique challenges of operating eVTOL aircraft.

Autonomous Flight And Control Systems

Autonomous flight technology is a game-changer for the eVTOL industry. This topic covers the development and implementation of autonomous flight and control systems, including AI and machine learning applications, sensor technologies, and redundancy systems to ensure safety. It also discusses the regulatory and ethical considerations of autonomous flight.

Design And Production Systems

Designing and finalizing prototypes while building robust production systems is a critical phase for eVTOL manufacturers. This topic delves into finalizing and freezing designs to build conforming prototypes and focuses on building out efficient production systems. It also covers advanced modeling and simulation, overcoming manufacturing and supply chain challenges, and ensuring structural integrity with composites and thermoplastic resin systems.

Interior Design, Materials, And Haptics In eVTOLs

The interior design of eVTOLs plays a crucial role in passenger comfort, safety, and overall experience. As the industry evolves, there is a growing focus on utilizing advanced materials and haptic technologies to create a sophisticated and immersive environment within the cabin. This topic explores the latest trends and innovations in eVTOL interior design, the use of cutting-edge materials, and the integration of haptic feedback systems to enhance the passenger experience.

Regulatory Landscape And Policy Development

Navigating the regulatory landscape is a significant challenge for the eVTOL industry. This topic covers the current state of regulations, the role of international aviation authorities, and the development of policies that facilitate the safe and efficient operation of eVTOLs. It also explores the impact of emerging regulations on the industry and strategies for compliance.

Data Management And Cybersecurity

Managing data and ensuring cybersecurity are major concerns for the eVTOL industry. This topic covers data management strategies, cybersecurity protocols, and the importance of protecting sensitive information. It also explores the role of blockchain and other advanced technologies in enhancing data security.

Battery Technology And Energy Management

Battery technology is a cornerstone of eVTOL performance and efficiency. This topic addresses managing battery recharging times, increasing range, and shortening turnaround times. It explores the challenges of using off-the-shelf EV batteries, developing batteries tailored to eVTOL needs, and overcoming issues related to cycle life, energy density, and feasibility. Additionally, it includes discussions on solid-state batteries, sodium-ion batteries, hydrogen fuel cells, and managing temperature parameters.

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08:00

Chairperson's Welcome Address

Nicolas Zart, Electric Air Mobility/Vertiport Infrastructure, LLC.

08:20

Paving the Way to eVTOL Commercialization

Eric Allison, Chief Product Officer, Joby Aviation

This session provides an in-depth look at the commercialization journey of Joby Aviation's eVTOL aircraft, offering critical insights into the current state of the eVTOL industry. With market demand growing and regulatory landscapes evolving, the session explores key advancements, challenges, and strategies for eVTOL manufacturers. Emphasizing the importance of sustainability, partnerships, and public perception, this session highlights what it takes to bring eVTOL technology to market today.

Why It Matters for eVTOL Manufacturers:

As the eVTOL industry progresses toward commercialization, understanding the market dynamics, regulatory requirements, and scaling challenges is essential for manufacturers aiming to capitalize on growing demand.

Key Learning Objectives:

- Analyze recent advancements and market demand across urban air mobility and regional transport segments
- Understand the evolving regulatory environment and the milestones needed for certification.
- Learn how strategic partnerships can build a robust eVTOL ecosystem
- Explore public perception challenges and strategies to increase acceptance
- Gain insights into scaling manufacturing processes for eVTOL commercialization

08:40

The Promise of Energy-Efficient Battery-Powered Urban Aircraft: Advances, Challenges, and Technological Readiness

Venkat Viswanathan, Technical Consultant, QuantumScope

- Battery-specific energy and power requirements for eVTOL operation
- Impact of design parameters like disk loading and lift-to-drag ratios on energy efficiency
- Technological readiness of current battery technologies for UAM applications
- Case studies of current and experimental eVTOL aircraft: Joby, Lilium, Beta Technologies, and EVE, Archer, Volocopter
- Regulatory challenges and the role of safety standards in eVTOL adoption

09:00

Integrating Advanced Air Mobility (AAM): Navigating The Future Of Airspace Operations

Wendy O'Connor, Executive Director of FAA AAM Integration, FAA

This session focuses on the integration of Advanced Air Mobility (AAM) into the future of airspace operations. Attendees will explore the technical, regulatory, and environmental challenges of integrating AAM platforms like UAS and eVTOL into both controlled and uncontrolled airspace. The session delves into the latest advancements in air traffic management, energy management for electric propulsion, certification standards, and environmental impact mitigation.

- Explore technical requirements for integrating AAM platforms into existing airspace without disrupting current traffic
- Investigate advancements in air traffic management and autonomous systems for real-time conflict detection and resolution
- Analyze the challenges of energy management, focusing on propulsion systems' energy density, power delivery, and thermal management
- Understand evolving certification standards for eVTOLs and UAS, emphasizing safety, reliability, and redundancy systems
- Assess noise management technologies and their role in minimizing the environmental impact of AAM in urban environments

09:20

Advancing eVTOL HIL/SIL Validation Testing: Innovations From Tip-to-Battery-to-Tail

Peter Blume, President, Bloomy

Hardware-In-the-Loop (HIL) and Systems Integration Lab (SIL) testing are critical techniques for the validation, integration and certification of electric aircraft. BLOOMY® has commercial offerings for the simulation and test of autonomous systems, battery, engine, environmental, and flight controls, mission, propulsion, and vehicle management systems, as well as sensors, actuators and avionics buses. In this presentation, Peter presents an eVTOL industry-wide challenge statement, an introduction to HIL/SIL testing, as well as commercially available components and architecture for streamlining the commissioning of a new SIL, including some reference configurations for eVTOL. Furthermore, Peter explains how the eVTOL industry-wide challenges are met using HIL/SIL Testing.

- How to develop, integrate and certify a new aircraft, with new battery-electric propulsion, higher autonomy, evolving standards, fewer flight-test hours, higher safety and reliability
- Introduction to HIL/SIL testing, including component testing, integration and certification as well as full iron-bird testing, from Tip-to-Battery-to-Tail
- The latest commercially available technologies for battery cell and pack simulation that increase safety, efficiency, test coverage and performance
- Scalable test system architectures that dramatically reduce labor, cost and lead time for

new HIL/SIL deployments, thereby accelerating eVTOL time-to-market

09:40

The Future of eVTOL MRO

Manoj Singh, Executive VP, Ramco Systems

This session delves into the future of Maintenance, Repair, and Overhaul (MRO) for eVTOL aircraft. It highlights the key differences between traditional aircraft MRO and the specialized requirements for eVTOL, emphasizing the role of advanced analytics, digital twins, and predictive maintenance. The session also covers the unique challenges posed by eVTOL materials and technologies, as well as collaboration opportunities and regulatory requirements shaping the MRO landscape.

- The key differences between traditional aircraft MRO models and those required for eVTOL, including the need for specialized tools and expertise
- The emerging role of advanced data analytics, remote monitoring, and predictive maintenance in the upkeep of electric propulsion and battery systems
- Identifying the unique challenges presented by the materials and technologies used in eVTOL construction, and how these impact maintenance schedules and costs
- Learn how digital twin technology and virtual simulations can be used to optimize MRO processes, minimize downtime, and improve decision-making in real-time
- Gain insights into the collaboration opportunities between MRO providers, eVTOL manufacturers, and technology developers to address the complexity of eVTOL maintenance
- Investigate the regulatory requirements and industry standards that will shape the future of eVTOL maintenance, repair, and overhaul practices

10:00

Faster eVTOL Charging, Extending Range, and Propagation Prevention through Advanced Battery Thermal Management

Bret Trimmer, Applications Engineering Manager, NeoGraf Solutions

- Implementing strategies to reduce heat buildup during rapid charging cycles
- Reviewing the latest goals and best current methods for drone, ePlane, and eVTOL battery thermal management
- Examining the five factors that allow cells to charge quickly and discussing the single factor that pack designers can control
- Exploring the four primary strategies battery pack manufacturers use to prevent Thermal Runaway and the impact of each on fast charging, cell performance, and cell lifetime
- Understanding the three key advantages that flexible graphite offers for thermal management
- For applications where smaller size and lighter weight is essential, flexible graphite will be discussed as a direct substitute for aluminium

10:20

Enhancing eVTOL Performance With Advanced High Power And High Voltage Connectivity Solutions

Dave Amet, Business Development Manager - eVTOL Electric & Hybrid Aviation, **Amphenol**

The critical role of advanced high power and high voltage connectors in overcoming the unique challenges of eVTOL systems. Attendees will explore the importance of reliable connectivity in high power and high voltage applications, and how innovative solutions can meet the stringent demands of the eVTOL sector.

Customizability and Versatility for Diverse eVTOL Applications

- How advanced connectors can be customized to meet specific requirements of different eVTOL designs
- Case studies showcasing successful integration of high power connectors in various eVTOL models
- Exploration of advanced contact technologies that enhance connector performance and durability
- Benefits of high current carrying capacity for improving eVTOL system efficiency
- Exploration of future trends in high power and high voltage connectivity
- Potential advancements in connector technologies that will further support the evolving needs of the eVTOL industry
- Overview of the operational challenges eVTOL systems face at high altitudes and under varying environmental conditions
- Ensuring reliability and safety with partial discharge-free performance at high altitudes
- Versatility in different shell styles to meet diverse eVTOL application needs

10:40

Amphenol

Morning Networking Break

11:20

eVTOL Mission Simulation for Optimized Energy Management

Sascha Heinecke, Director Sales Industry Solutions, **AVL List GmbH**

Energy efficiency is a key factor in the commercial success of eVTOL aircraft. Manufacturers need to understand how mission-specific energy management can improve performance, lower operational costs, and ensure the viability of eVTOL technology across diverse routes.

Attendees will explore the critical role of mission simulation in optimizing energy management for eVTOL aircraft. The session demonstrates how advanced simulation technologies can predict energy consumption across various operational scenarios, using multi-physics models to assess the entire propulsion system. By simulating specific missions, this approach not only forecasts energy usage but also identifies strategies for maximizing efficiency and validating hardware performance.

- Understand the importance of energy consumption analysis for eVTOL aircraft in various operational use cases
- Explore how simulation and testing technologies can predict and optimize energy usage for eVTOL missions
- Learn how multi-physics models provide comprehensive insights into the propulsion system's performance during mission analysis

- Identify strategies for maximizing energy efficiency across different eVTOL mission scenarios
- Discover how simulation technologies can validate hardware performance and optimize eVTOL energy management for real-world applications

11:40

eVTOL Battery Analysis: Unique Operating Demands

Ilias Belharouak, Head of Electrification Section, **Oak Ridge National Laboratory**

Insight into pioneering R&D of specialized batteries for eVTOL aircraft. Learn about the unique power requirements, challenges, and breakthroughs that are shaping the future.

- Understanding the different power levels during various flight phases such as takeoff, climb, hover, and descent; how high power demands can reduce battery lifespan and performance
- Managing high temperatures generated during rapid power draw phases
- Evaluating lithium-ion batteries under extreme conditions to understand material degradation and performance.
- Exploring new material development to improve energy density and battery performance
- Creating systems to balance high power bursts with long-range energy reserves
- Running batteries through simulated eVTOL flight phases and analyzing performance
- Investigating chemical and structural changes in battery materials post high-power cycling
- Testing new ORNL-developed electrolytes against current standards to improve capacity retention

12:00

Revolutionizing eVTOL Power With The Promise Of Lithium-Sulphur Batteries

Dennis Wang, Lead Systems Engineer, **Lyten**

- Overcome the limitations of Lithium-Ion batteries that face challenges such as mineral dependency, supply chain constraints, costs, and safety risks
- Discuss whether super materials like 3D Graphene can pave the way for widespread electrification? Instead of incremental improvements to Lithium-Ion chemistry, explore the potential of Lithium-Sulphur battery chemistry
- Understand the advantages of Lithium-Sulphur: Lithium-Sulphur offers high energy density, lightweight properties, and improved safety without the need for nickel, cobalt, manganese, or graphite in the cathode or anode
- Explain the technology behind the accelerated progress that was not expected to advance by the 2030s, Lithium-Sulphur technology is advancing ahead of schedule, thanks to innovations like 3D Graphene, promising a sooner-than-expected transition to this promising battery chemistry

12:20

Hydrogen Fuel Cells In eVTOL: Overcoming Technical And Safety Barriers For Sustainable Aviation

John Piasecki, President & CEO, **Piasecki Aircraft Corporation**

- Experiences and lessons of implementing hydrogen fuel cell technology in eVTOL aircraft, examining the technical and operational challenges encountered and the solutions developed to overcome them
- Understand the landscape of existing eVTOL projects that are incorporating hydrogen high-temperature fuel cells, highlighting the technological advancements and the companies leading the charge in this innovative sector
- Discover the advantages of using hydrogen fuel cells in electric aviation, including increased energy efficiency, longer range, and reduced environmental impact
- Explore the critical safety protocols and measures necessary for the successful integration of hydrogen high-temperature fuel cells in aviation, addressing concerns related to hydrogen storage, handling, and overall aircraft safety
- The future of hydrogen-powered eVTOLs, anticipated technological advancements, regulatory developments, and the potential for mass adoption in the urban air mobility market

12:40

The Advantages And Challenges Of Unleashing Liquid Hydrogen On eVTOL Aviation

Hugh Kelly, VP Marketing, **Alakai Technologies**

- Understand that liquid hydrogen presents significant challenges in infrastructure development due to limited existing transport and storage infrastructure, as well as high costs associated with complex storage systems
- Despite challenges, liquid hydrogen offers performance advantages over battery electric energy, including better range, flight duration, and payload capacity for rotary-wing eVTOL vehicles
- Learn that liquid hydrogen aircraft boast faster recharge or refuelling cycles compared to battery-powered counterparts, enhancing operational efficiency and turnaround times
- Acknowledge that while batteries offer simplicity, many eVTOL developers are exploring liquid hydrogen for its zero carbon emissions, aligning with global efforts towards sustainable aviation
- Discuss how the pursuit of carbon-free technology has spurred substantial investment from governments and private sectors, driving research and development in liquid hydrogen as a clean energy source for eVTOL aviation

13:00

Luncheon Break

14:00 | PANEL SESSION

Airports As Catalysts For Urban Air Mobility: Pioneering Infrastructure For eVTOL Integration

Declan Byrne, Senior Director – Aerospace & Defense, **APAC & LATAM, PTC**

George Kivork, Head of US State & Local Policy, **Joby Aviation**

Torrie Meliska, Vertiport & Infrastructure Partnerships Manager, **Wisk**

Bryan Bernhard, Chief Growth and Infrastructure Officer, **Archer Aviation**

Bert Ganoung, Aircraft Noise Abatement Manager, **San Francisco International Airport**

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Samuel Ingalls, Principal, Barich
Gina Dew, Director, Government and
Community Relations, Tampa International
Airport
Mike Di Cosola, CEO, Vertiport Infrastructure
Systems Corp(VISC)
Brent Klavon, Chief Strategy Officer, ANRA
Technologies
Felipe Varon, Founder & CEO, VARON

Key Talking Points:

- **Infrastructure Adaptation and Innovation:** Exploring the modifications and innovation airports need to implement to accommodate UAM and eVTOL operations, including vertiports and charging stations
- **Regulatory and Safety Considerations:** Addressing the regulatory framework and safety protocols necessary for the safe integration of eVTOLs into urban airspaces and airport environments
- **Economic and Environmental Impact:** Evaluating the economic benefits and environmental considerations of incorporating UAM and eVTOLs into airport operations, including sustainability initiatives and cost-effectiveness
- **Passenger Experience and Accessibility:** Enhancing the passenger journey through streamlined processes and increased accessibility, ensuring a positive and efficient travel experience from ground to air
- **Collaboration and Partnerships:** Highlighting the importance of collaboration between airports, eVTOL manufacturers, urban planners, and regulatory bodies to create a cohesive and supportive ecosystem for UAM expansion

14:40

Advanced Composites In eVTOL: Driving Efficiency And Lightweight Design For Next-Gen Aircraft

DeWayne Howell, Application Development and Expert Service Field Manager, Toray Advanced Composites

- Gain insight into how specific composite materials—thermosets, thermoplastics, and fiber-reinforced composites—are used across structural, propulsion, and interior components.
- Learn about the latest developments in composite-based battery enclosures that offer both strength and thermal resistance for improved safety and durability.
- Explore material selection strategies for eVTOL platforms, ensuring surface protection and operational longevity in high-demand environments.

Primary Structural Components:

- Applications of composites in fuselages, wings, landing gear, and control surfaces (flaps, ailerons, spoilers, elevators, and ruddervators).
- How fiber-reinforced composites offer unparalleled strength-to-weight ratios, improving flight performance and range.

Propulsion System Integration:

- The critical need for lightweight, durable composites in eVTOL propulsion systems, from motor housings to propeller components.
- Analysis of thermoset and thermoplastic benefits in reducing mass while maintaining structural integrity under high mechanical loads.

Battery Racks and Thermal Management:

- Composites used in battery boxes and racks,

designed for high-temperature resistance and structural durability.

- Leveraging bulk molding compounds for optimizing thermal management and safety in battery systems

Interior Cabin Solutions:

- Cabin components are made from advanced composites to meet weight, durability, and fire resistance standards for seatbacks, wall dividers, floor panels, and stowage compartments.

Platform Protection and Durability:

- Surface protection techniques, including lightning strike protection, galvanic barriers, and surface films, ensure long-term resilience in various operating environments.

15:00

Immobilized Sulfur Cathodes: Pioneering The Future Of Li-S Batteries For eVTOLs

Rob Murano, Senior Director of Product Development & Commercialization, Coherent Corp.

- Sulfur, a cheap and abundant material, holds immense potential as a high-capacity cathode for lithium-sulfur (Li-S) batteries. However, critical limitations in cycle life, discharge rates, and practical energy density have hindered its use—until now
- Discover how chemical immobilization of sulfur (and selenium) offers a breakthrough solution to overcome these challenges. This revolutionary technique transforms sulfur into a long-lasting, high-performance cathode material, enabling efficient and reliable battery systems
 - Impact on eVTOL Design: Gain insights into current and projected cell performance tailored for eVTOL applications, offering designers a comprehensive view of when and how Li-S technology will enable safer, lighter, and more efficient electric vertical take-off and landing (eVTOL) aircraft
 - Addressing the remaining challenges, this presentation will provide a transparent timeline for advancements, helping stakeholders anticipate when Li-S batteries will become commercially viable for the aviation industry

15:20

Optimizing Size Weight And Power (SWaP) For eVTOL Aircraft

Matt McAlonis, Aerospace Engineer Fellow, TE Connectivity

- Techniques for designing smaller and lighter weight components without compromising functionality
- Designing components to enable efficient propulsion systems and advanced power management
- Ensuring system redundancy and reliable electronics
- Designing systems to operate efficiently in varied weather conditions
- Ensuring long-term durability and resistance to environmental stresses
- Developing scalable and cost-effective manufacturing processes from functional prototype to serial product
- Minimizing maintenance and focusing on lifecycle management
- Understand the critical size, weight, and power

challenges in eVTOL development

- Explore innovative materials and design techniques to optimize SWaP
- Learn about advancements in connecting to battery technology and power management
- Looking at the complete architecture with electrical propulsion system design

15:40

Innovations In Control Laws For Advanced Air Mobility: Exploring Technological Advancements, Safety, And Efficiency In Next-Generation Air Transportation Systems

Soumya Datta, Head of Engineering, Pivotal
Vivek Chugh, Manager of Guidance, Navigation & Controls, Pivotal

- Understand the latest advancements in control law technologies and their critical applications in ensuring safety and efficiency in advanced air mobility systems
- Learn about key design principles for developing effective human-machine interfaces that enhance user experience, reduce pilot workload, and ensure intuitive operation in advanced air mobility vehicles
- Explore the significant role of automation and artificial intelligence in advanced air mobility, including autonomous flight systems and real-time decision-making, and their impact on control and interface design
- Identify the specific training challenges faced by pilots and operators in advanced air mobility, including the need for specialized skills and the importance of simulation-based training programs and continuous education to keep up with technological advancements
- Gain insights into the future trends and innovations in advanced air mobility, focusing on how emerging technologies will shape the industry and address current challenges in control, automation, and user experience

16:00

Cobalt-Iron Stacks For Volume Production In Aerospace and Urban Air Mobility

Niklas Volbers, Director Advanced Research, VAC Magnetics

- Understand why Cobalt-Iron alloys (CoFe) offers the highest induction among commercial soft magnetic materials, enabling a 20-30% increase in torque and power density, crucial for aviation electrical propulsions
- Discuss why the production of lamination stacks is critical for delivering superior material properties, with segmented solutions and interlocking processes for high-volume aerospace applications
- Explain how quality control involves testing magnetic properties throughout the production chain, with innovative setups to quantify the influence of processing on stator teeth
- Describe why vertical integration and strong R&D in materials development and parts processing are essential for producing high-quality CoFe stacks on an industrial scale for aviation

16:20

Fast-Track Development of eVTOL With HIL

Joe Orlando, Sales Engineer, Speedgoat

Bringing eVTOL to market presents challenges, particularly in testing key systems like battery management, propulsion, and flight controllers. This session introduces model-based development and real-time solutions for testing electric aircraft control systems.

- Understand hardware-in-the-loop (HIL) testing of battery management systems (BMS) using emulated batteries, including testing of thermal behavior and fault conditions
- Discover HIL testing of electric motor drives and their embedded controllers with a focus on Simulink®-Programmable FPGAs that can represent the dynamic behavior of the power electronics hardware
- Explain automated and requirements-based testing of flight controllers from early prototype states until final deployment using continuous integration

16:40

Afternoon Break

17:20

Unlocking the Future: Opportunities and Challenges for eVTOLs and Their Infrastructure

Santh Sathya, Founder and CEO, LuftCar

- Explore various options and innovative use cases for both air and road-based eVTOLs, and how they can revolutionize transportation
- Discover the crucial role hydrogen is poised to play in shaping the future of the eVTOL market as a sustainable energy source
- Examine groundbreaking hydrogen initiatives worldwide and their impact on advancing eVTOL technologies
- Get an in-depth look at the growing momentum and significant progress within the eVTOL market, setting the stage for its widespread adoption

17:40

Advancing eVTOL Logistics: FAA Approvals, BVLOS, And Autonomous Capabilities

Manal Habib, CEO, MightyFly

- Explore the significance of FAA-approved flight corridors for eVTOLs and drones, enabling comprehensive flight tests and regulatory advancements.
- Critical to large-scale drone logistics, BVLOS testing with chase planes sets the groundwork for future autonomous flight, ensuring safety and reliability at extended ranges.
- Learn about the Cento's hybrid design, capable of carrying 100 lbs over 600 miles autonomously, with advanced features such as automated loading/unloading and internal weight balancing.
- Explore real-world applications of cargo drones in sectors like manufacturing, healthcare, remote industries, and defense, showcasing the potential for rapid, efficient logistics.

18:00

Addressing the Challenges Of Vertiport Development For eVTOL Integration

Nicolas Zart, Electric Air Mobility/Vertiport Infrastructure, LLC

The critical challenges and innovative solutions for developing vertiports, which are essential to the successful integration of eVTOL aircraft in urban environments. The session will explore a range of issues, from infrastructure and regulatory hurdles to technological and operational requirements, providing a comprehensive look at what's needed to build a scalable, sustainable, and safe vertiport network for the future of urban air mobility.

- Overcoming Challenges in Developing Vertiports for the eVTOL Sector
- Strategies for identifying suitable locations in urban areas
- Integrating vertiports with existing transportation infrastructure
- Structural requirements and design considerations for vertiports
- Addressing high energy demands with robust electrical infrastructure
- Incorporating sustainable energy solutions for long-term viability
- Navigating certification processes with aviation authorities
- Integrating vertiport operations with existing air traffic control systems
- Developing new airspace management protocols for urban air mobility

18:20

Engineering Safety And Reliability: Mastering Certification And Advanced Design For eVTOL Airworthiness

Martin Peryea, SVP and GM of Electric Air Mobility, Jaunt Air Mobility

- Achieving certification to transport-level airworthiness standards, ensuring that eVTOL aircraft meet the highest regulatory safety requirements for commercial operations
- Critical system safety methods that identify, mitigate, and manage risks throughout the eVTOL lifecycle to guarantee operational reliability
- Explore the principles of inherent crashworthy design that protect passengers and critical systems in the event of an accident, enhancing overall survivability
- Examine how eVTOLs are engineered for a seamless transition from hover to cruise mode, providing efficient and stable flight across different phases of operation
- Discover how eVTOLs are designed to maintain a superior level of safety during power failure scenarios, using redundancy and advanced technologies to safeguard passengers

18:40

Noise Reduction And Sound Optimization: Predictive Analysis, Modeling, And The Application

Of Lightweight Thermal-Acoustic Materials

Tom Burns, Bd. Cert. INCE, Senior Acoustical Engineer & Lab Manager, Soundcoat

How predictive analysis and modeling can be used to optimize the product design process while reducing noise and improving the sound quality of cabin spaces. Followed by an in-depth presentation of lightweight, FAR-rated and BMS-certified noise absorbing and damping materials, their application in the cabin and airframe, and their known characteristics that meet FAA & EASA guidelines.

- Introduction to materials commonly used for thermal acoustic insulation, including composites, foams, and polymers for passenger comfort inside the aircraft
- Benefits and limitations of different noise-damping materials such as non-acoustic parameters, appropriateness, and optimized energy usage
- Strategies for insulating the cabin to reduce internal noise levels
- Use of multi-layer insulation systems combining various materials for optimal noise reduction
- Selection of lightweight, sound-absorbing materials for cabin interiors
- Balancing noise reduction with the need for lightweight materials to maintain flight efficiency

19:00

Advancing Vertiport Management Systems For Seamless VTOL Operations

Brent Klavon, Chief Strategy Officer, ANRA Technologies

This session introduces the latest advancements in Vertiport Management Systems (VMS) to support the operations of eVTOL aircraft. Anra Technologies has developed a web-based VMS software platform that integrates various systems to facilitate efficient flight and ground infrastructure management. As vertiport providers focus on building physical infrastructure, this session will explore how digital solutions are crucial for ensuring safe, efficient, and scalable UAM services.

- Understand how VMS technology is designed to support both piloted and autonomous VTOL aircraft, with capabilities to exchange real-time data between aircraft and supporting services for smooth arrivals and departures
- Learn about the role of VMS in enhancing safety through intelligent operational decision-making, utilizing real-time aircraft telemetry, flight status, and collision threshold monitoring
- Discover how VMS integrates with existing air traffic management systems and urban planning frameworks, aligning with NASA's guidelines for vertiport automation and contributing to the broader advanced air mobility ecosystem

19:20 | PANEL

Overcoming Challenges In Autonomous eVTOL Deployment

Jonathan Lovegren, Chief of Autonomy & Airspace Integration, Wisk

This session will address the key challenges in

developing and deploying autonomous electric vertical takeoff and landing (eVTOL) aircraft, focusing on technical, regulatory, and societal aspects. Key topics include:

Flight Control and Stability:

- Advanced algorithms and flight control systems for precise, reliable control in variable weather and urban environments

Battery Technology

- Overcoming limitations in energy density, weight, charging times, and thermal management

Sensor Integration and Redundancy

- Use of LiDAR, radar, and cameras for navigation, obstacle detection, and collision avoidance, with redundancy for system reliability

Software Reliability

- Developing fail-safe software through rigorous testing to handle contingencies

Communication Systems

- Ensuring reliable V2I and V2V communication with low latency in urban areas

Certification and Standards

- Meeting aviation safety standards and developing new regulations for autonomous eVTOLs

Air Traffic Management (ATM)

- Integrating autonomous eVTOLs into existing

ATM systems and creating new protocols for urban airspace

Legal and Liability Issues

- Addressing liability and creating legal frameworks for autonomous eVTOL operations

19:40

How to Prevent a Certification Hangover

Aaron Koopman, Director of Airworthiness and Certification, COLLINEAR GROUP

Join us for a dynamic and engaging session on the complexities of aerospace certification, presented with insights earned over 35 years in the field. Certification can be tough—expensive, time-consuming, and filled with unexpected challenges. This session will break down the process with humor and practical advice, helping you avoid common pitfalls.

We'll tackle topics like:

- Why shortcuts in certification can backfire
- The critical (and controllable) challenges of design freeze and change management
- Why thinking you're "special" won't speed up FAA approval
- The importance of fortifying your design requirements with certification in mind

- How certification can be valuable intellectual property that strengthens your market position.

This interactive session invites audience participation—snap your fingers if you agree with the tips, shuffle your feet if you disagree. And above all, as we wrap up with a celebration of the value certification adds to your company, remember: Certify responsibly!

Ideal for engineers, program managers, and executives navigating aerospace certification, this 15-minute session will equip you with actionable insights to streamline the certification process and avoid the dreaded "certification hangover."

20:00

Chair's Closing Remarks

20:20

Evening Drinks Reception

Personal eVTOL: Walk Around with Doron Merdinger, CEO & Founder, Doroni Aerospace



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ATTENDEES BY COMPANY 2023

Archer Aviation, Joby Aviation, Volocopter, Lilium, Vertical Aerospace, EHang, Bell Nexus, Wisk Aero, Jaunt Air Mobility, Sabrewing Aircraft Company, Lift Aircraft, Manta Aircraft, XTI Aircraft Company, Jump Aero, Transcend Air Corporation, Electra.aero, Skyrise, AIR, Samad Aerospace, Rotor X Aircraft Manufacturing, Urban Aeronautics, AeroMobil, Airbus Urban Mobility, EVE, Karem Aircraft, Pipistrel, Astro Aerospace, Opener, Geely, Boeing, Beta Technologies, SkyDrive, Skyports, Urban-Air Port, VPorts, Volatus Infrastructure, Lilium Network, Vertiport Chicago, Ferrovial Airports, Munich Airport International (MAI), Landing International, InfraTech Aero, Honeywell Aerospace, Garmin, Thales Group, Collins Aerospace, GE Aviation, Safran, Rolls-Royce, Siemens eAircraft, Leonardo, Denso, Eaton, L3Harris Technologies, Raytheon Technologies, Toray Industries, Hexcel Corporation, Solvay, SGL Carbon, Teijin Limited, Cytec Industries, Mitsubishi, Evonik Industries, Arkema, Dupont, Henkel, 3M, BASF, PPG Industries, Aleris, Materion, Amphenol Aerospace, NASA, FAA, EASA, Uber Elevate, Boeing, Airbus, Lockheed Martin, General Motors, Stellantis, Ford Motor Company, Toyota, Hyundai, Honda Aircraft, Bosch, Panasonic, Samsung SDI, LG Chem, Northrop Grumman, KPMG, Deloitte, Skyports Infrastructure, Skybase, Urban-Air Ventures, eVTOL Airport Solutions, Airspace Experience Technologies, Aeroport Mobility, Horizon Urban Air Mobility, SkyGate, Airspace Systems, FlytBase Vertiports, Moog Inc., Parker Aerospace, BAE Systems, MTU Aero Engines, MagniX, Ampaire, Spirit AeroSystems, Meggill, AeroVironment, Kraton Corporation, Kordsa, Owens Corning, Gurit, Plasan Carbon Composites, Park Aerospace, AGY Holding Corp, Chomarat Group, SABIC, Lanxess, Victrex, Aviation Industry Corporation of China (AVIC), Embraer, Bombardier, Dassault Aviation, Textron Aviation, Bell Helicopter, Plaggio Aerospace, Aurora Flight Sciences, Textron Systems, US Air Force, Department of Transportation (DOT), National Renewable Energy Laboratory (NREL), Federal Communications Commission (FCC), International Civil Aviation Organization (ICAO), World Economic Forum (WEF), International Air Transport Association (IATA), Air Line Pilots Association (ALPA), American Institute of Aeronautics and Astronautics (AIAA), The Boeing Company, General Electric (GE), Lockheed Martin, Raytheon Technologies, Northrop Grumman, Bechtel, Fluor Corporation, Accenture, PwC, Ernst & Young (EY), McKinsey & Company, Boston Consulting Group (BCG), NeXt Aero, Jetpack Aviation, Alaka'i Technologies, Yuneec International, Hoversurf, Terrafugia Transition, AVX Aircraft Company, Ascendence, Vertiv, Global Air Mobility Solutions, SkyLanes, Heliports of America, SkyDock, VertiPort Americas, SkyGrid, Urban Port, Elevated Networks, Metro Skyways, CityAir Ports, Curtiss-Wright, Harris Corporation, Viasat, LORD Corporation, Esterline Technologies, Rockwell Collins, Teledyne Technologies, ITT Corporation, Schneider Electric, Hexagon AB, PPG Aerospace, Dymax

THOUGHT LEADERSHIP

Establish your company as a thought leader by showcasing your latest innovations, insights, and best practices on the eVTOL Show 2024 stage. Deliver a keynote address, participate in a panel discussion, or host a workshop to educate, inspire, and solidify your position as a leader in the industry.

MAXIMUM VISIBILITY

Elevate your brand's presence by connecting with a targeted audience of eVTOL designers, engineers, manufacturing experts, and strategists. Boost your visibility through prominent logo placement as an event sponsor and captivate the delegation with an engaging and interactive exhibition booth.

NETWORKING OPPORTUNITIES

Forge impactful connections and collaborations with key decision-makers, influential leaders, existing and prospective customers at the largest global gathering of eVTOL manufacturers and operators. Enjoy extensive networking opportunities throughout the day, followed by a drinks reception and exclusive VIP dinners.

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ATTENDEES BY JOB TITLE 2023

Chief Executive Officer (CEO), Chief Technology Officer (CTO), Chief Operating Officer (COO), Chief Financial Officer (CFO), Chief Innovation Officer (CIO), Chief Commercial Officer (CCO), President, VP of Engineering, VP of Manufacturing, VP of Operations, VP of Research & Development (R&D), VP of Product Development, VP of Business Development, Lead Engineer, Principal Engineer, Senior Engineer, Systems Engineer, Electrical Engineer, Mechanical Engineer, Aerospace Engineer, Software Engineer, Design Engineer, Structural Engineer, Propulsion Engineer, Test Engineer, Materials Engineer, Manufacturing Engineer, Production Engineer, Quality Assurance Engineer, Reliability Engineer, Safety Engineer, Integration Engineer, Simulation Engineer, Firmware Engineer, Controls Engineer, Battery Systems Engineer, Battery Pack Engineer, Power Electronics Engineer, Battery Management Systems (BMS) Engineer, Energy Storage Engineer, Thermal Management Engineer, Director of Research & Development (R&D), R&D Manager, Innovation Manager, Development Engineer, Product Development Manager, Experimental Test Pilot, Aerodynamics Specialist, Battery R&D Scientist, Battery Chemist, Materials Scientist, Supply Chain Manager, Logistics Manager, Procurement Manager, Materials Manager, Inventory Manager, Operations Manager, Warehouse Manager, Supply Chain Analyst, Distribution Manager, Director of Business Development, Strategy Manager, Market Development Manager, Partnerships Manager, Strategic Alliances Manager, Client Relations Manager, Industry Analyst, Director of Regulatory Affairs, Compliance Manager, Certification Manager, Quality Manager, Regulatory Affairs Specialist, Environmental Compliance Manager, Safety Compliance Officer, Director of Operations, Operations Manager, Production Manager, Plant Manager, Operations Analyst, Production Planner, Lean Manufacturing Specialist, Six Sigma Black Belt, IT Manager, IT Infrastructure Manager, Cloud Solutions Architect, Cybersecurity Specialist, Network Engineer, Systems Administrator, Director of Marketing, Communications Manager, Brand Manager, Technical Support Engineer, Director of Finance, Financial Analyst, Controller, Legal Counsel, Battery Systems Engineer, Battery Pack Engineer, Battery Management Systems (BMS) Engineer, Battery Design Engineer, Power Electronics Engineer, Battery Research Scientist, Battery Chemist, Energy Storage Engineer, Battery Thermal Management Engineer, Battery Testing and Validation Engineer, Materials Engineer, Composite Materials Engineer, Advanced Materials Scientist, Polymer Scientist, Metallurgist, Nanomaterials Engineer, Materials Testing Engineer, Structural Materials Engineer, Surface Coatings Engineer, Manufacturing Engineer, Production Engineer, Industrial Engineer, Process Engineer, Automation Engineer, Additive Manufacturing Specialist, CNC Programmer, Lean Manufacturing Specialist, Quality Control Inspector, Assembly Line Supervisor

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