



SHAPING THE FUTURE OF AEROSPACE

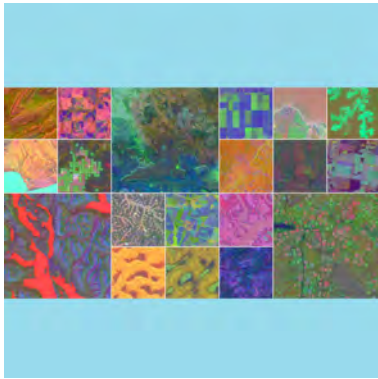
LOS ANGELES SECTION - AUGUST, 2025



Vaughan

American Institute of Aeronautics and Astronautics
LOS ANGELES SECTION

(Please click on the image or text in each of the items in the Table of Contents to jump directly to that section.)



4

Upcoming Section Meetings (LA Section)



9

Cover Page Description and
Artwork Contributor



15

AIAA Announces 2024-2025
Section Award Winners



(Please click on the image or
text in each of the items in the
Table of Contents to jump
directly to that section.)



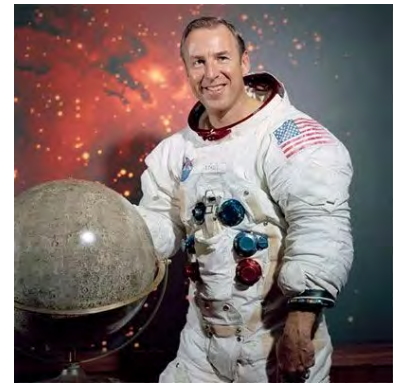
10

(8/12) The New World on Mars:
What We Can Create on the Red Planet
(Dr. Robert Zubrin)



24

(8/23) Ku/Ka Band Innovation in
Space & Defense: TR Multicoax and
Flight-Ready Socket Solutions



8

AIAA Mourns the Passing of
James A. Lovell



14

Hybrid Aircraft One Step Toward the
Future of Aviation



27

(8/16) AIAA LA Outreach to the
Rocket Fever Festival at Downey
Columbia Memorial Space Center

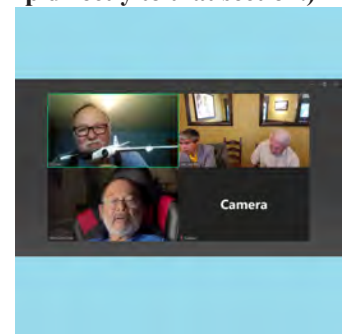
(Please click on the image or text in each of the items in the Table of Contents to jump directly to that section.)



34

(8/13) Young (Early Career) Professionals Mixer with the AIAA Los Angeles Section

Table of Contents 2



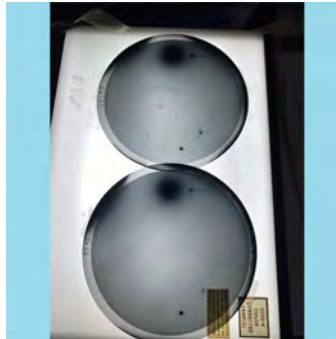
35

(8/20) AIAA LA Aero Alumni (retirees from aerospace industries) Meeting



36

My search for comets
(Dr David H. Levy)



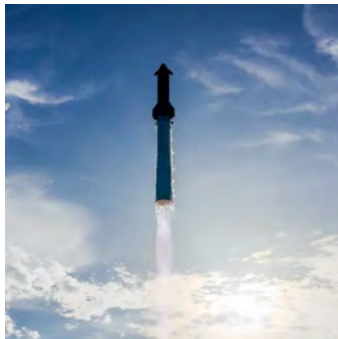
38

Shoemaker-Levy 9-style multiple impacts on Earth? (Dr. David H. Levy)



40

The US Needs to Take Ukrainian and Russian Drone Operations Seriously
(Dr. Stephen Bryen)



47

AIAA LA Aerospace News Digests

**Disclaimer: The views of the authors do not represent the views of AIAA or the AIAA Los Angeles (LA) Section. The newsletter is not a peer-review journal. The authors are responsible for the accuracy and authenticity of the technical details. Advertising space is available in the AIAA Los Angeles Newsletter: Business card, quarter page, half page, and full page, non-AIAA LA business/issues. The newsletter has over approx. 9,000 subscribers, which is growing. To inquire about purchasing advertising, email Newsletter Editor at editor.aiaalalv@gmail.com, or, editor-newsletter@aiaa-lalv.org
Volunteers for outreaches etc.: Please contact AIAA LA Section contact@aiaa-lalv.org**

To send comments or submissions, or to purchase advertising, please contact: AIAA LA Newsletter Editor, editor-newsletter@aiaa-lalv.org
Copyright © 2025-2026 American Institute of Aeronautics and Astronautics, Los Angeles Section



American Institute of Aeronautics and Astronautics
Los Angeles Section

Newsletter

Upcoming Events / Meetings of AIAA / Los Angeles Section

(<https://www.aiaa-lalv.org/events/2025-events-program>)

RSVP and Information :

(<https://lp.constantcontactpages.com/ev/reg/zu6n3hg/lp/e94d6fad-b556-4933-a8fe-84407ec2f36c>)

Wednesday, September 3, 2025, 5:30 PM PDT (GMT -0700)

Seeing Earth Through AI:

LLM-Augmented Geospatial Research with Satellite Imagery

Speaker:

Ms. Angelina Tsuboi

Software developer and an aerospace cybersecurity researcher

Undergraduate student majoring in Electrical Engineering at Caltech

Founder of Stellaryx Labs

(The speakers will present in person.)

Tentative Agenda: (All Times PDT)(GMT -0700)
(U.S. and Canada)

5:00 PM: Check-in (in-person), networking

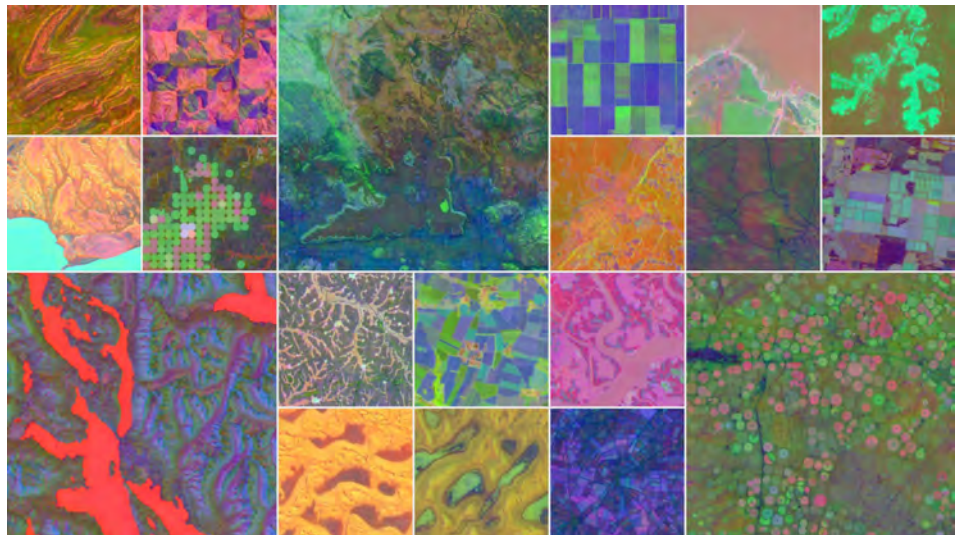
5:30 PM: Introduction

5:35 PM: Presentation, Q&A

7:05 PM: Networking; Adjourn

7:45 PM: Meeting Room Closes.

8:00 PM: Library Closes.



In-Person in:

Lawndale Library (Meeting Room)
14615 Burin Ave, Lawndale, CA 90260

Online:

(Please register / RSVP and you will receive the ticket with the Online link. Please check Spam or Junk folder shortly after registration to make sure. If not, please try using an alternative email address to register.)
(Meeting link/url in the confirmation email after RSVP or in reminders)

Disclaimer: The views of the speakers do not represent the views of AIAA or the AIAA Los Angeles Section. AIAA

LA Section: General Contact: contact@aiaa-lalv.org, Events/Program events.aiaalalv@gmail.com



American Institute of Aeronautics and Astronautics
Los Angeles Section

aiaa-lalv.org | aiaa-lasvegas.org
engage.aiaa.org/losangeles-lasvegas

Upcoming Events / Meetings of AIAA / Los Angeles Section

(<https://www.aiaa-lalv.org/events/2025-events-program>)

Wednesday, September 10, 11:15 AM - 1 PM PDT (GMT -0700) (US and Canada)

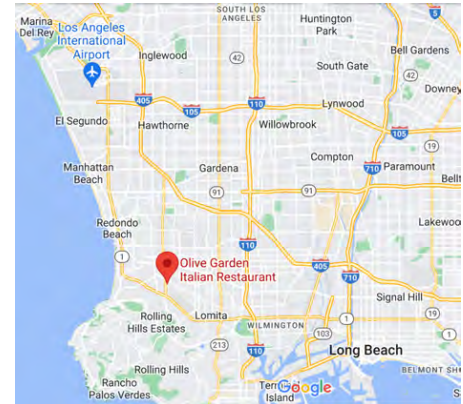
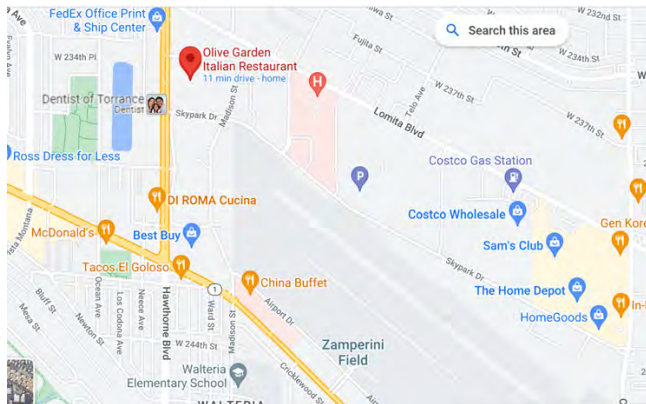
AIAA LA Aero Alumni Meeting

Hybrid in-person luncheon and Zoom on-line meeting

Our monthly Aero Alumni Zoom meeting is at 11 am PDT (on-line) / 11:15 am PDT (in-person) on September 10 (the 2nd Wednesday of September). It will be a hybrid meeting (both in-person there and on-line) at the Olive Garden in Torrance, 23442 Hawthorne Blvd., Torrance, CA 90505. If you can, please join us at the Olive Garden. We'll meet you there. If you can't, you can use the Zoom link below. It will take a few minutes to set up the link. You can chat among yourselves until it's ready.

In-Person in:

***Olive Garden in Torrance, 23442 Hawthorne Blvd., Torrance, CA 90505
(South of 105/405 Hwy, West of 101 Hwy, North of Pacific Coast Hwy (1))***



Join Zoom Meeting: <https://aiaa.zoom.us/j/87165309839?pwd=6PxeGQaXujqxUiVQoNFuHr8hsWBwkL.1>

One tap mobile

+16694449171,,87165309839# US

+12532158782,,87165309839# US (Tacoma)

Meeting ID: 871 6530 9839 Passcode: 236390

Join by SIP

• 87165309839@zoomcrc.com

Join instructions

[https://aiaa.zoom.us/meetings/87165309839/invitations?](https://aiaa.zoom.us/meetings/87165309839/invitations?signature=dYEza4caFcYlnwgeAd5djNzmVDqyxMlBkaYjmrqrVnM)

[signature=dYEza4caFcYlnwgeAd5djNzmVDqyxMlBkaYjmrqrVnM](https://aiaa.zoom.us/meetings/87165309839/invitations?signature=dYEza4caFcYlnwgeAd5djNzmVDqyxMlBkaYjmrqrVnM)

Please contact Mr. Gary Moir (gary.moir@ingenuir.com)



*The World's Forum for
Aerospace Leadership*



*Second Career?
Third Career?
Retired?*

*But still want to stay
in touch with your
profession!*

Join the AIAA Alumni Group of the LA Section

For:

- *Discussion topics of current or historical aerospace interest*
- *Lunch with colleagues during the meeting (hybrid)*
- *11 am the 2nd Wed of month*
- *Olive Garden in Torrance, 23442 Hawthorne Blvd., Torrance, CA 90505.*



For more information contact:

*Gary Moir
(310) 378-7076
gary.moir@ingenuir.com*



Upcoming Events / Meetings of AIAA / Los Angeles Section

(<https://www.aiaa-lalv.org/events/2025-events-program>)

RSVP and Information :

(<https://lp.constantcontactpages.com/ev/reg/7uw5taz/lp/21099f00-5cc9-4fab-b8a0-71f496990957>)

Saturday, September 13, 2025, 10 AM PDT (GMT -0700) (U.S. and Canada)

AIAA LA Industrial Visit /Tour at Aeros Facility – Showcasing LA's Airship Innovation (In-person only)

Aeros, based in Los Angeles, has over 30 years of experience designing, building and certifying advanced airships. The company is advancing the Aeroscraft, the world's first rigid variable-buoyancy airship developed with NASA and the U.S. DoD. Powered by its patented buoyancy control system, it can take off and land vertically, hover for precise cargo handling, and operate without infrastructure, bringing the world closer to a next-generation airship logistics network.

Outline:

1. Keynote Presentation by Founder & CEO Igor Pasternak – 45 minutes
Breakthrough technologies and patented systems behind Aeros' airships
Key projects in development
Future vision for airship-based logistics and global deployment
2. Immersive Headquarters Tour – 45 minutes
Guided walk-through of Aeros' headquarters
Close-up view of major components of the Aeroscraft and related systems
Insights into ongoing projects, engineering progress, and recent achievements
Live demonstration of the airship-drone delivery system in action
3. Executive Q&A Session – 15 minutes

Tentative Agenda: (All Times PDT \)(GMT -0700)
(U.S. and Canada)



10:00 am: Check-in, Networking
10:30 am: Introduction and welcome
10:35 am: Keynote Presentation
11:25 am: Immersive Headquarters Tour
12:15 pm: Executive Q&A Session
12:30 pm: Adjourn

Location

**Aeros Facility Downtown Los Angeles
442 E 3rd Street, Los Angeles, CA 90013 USA**

No Lunch or food will be provided.

Teenagers and children are welcome, but they'll need to be accompanied by a guardian.

Bottled water will be provided. Visitors may also bring their own water, but not food.

Parking is on the attendees' own expense and responsibility.

The parking structure of the medical building next door is open to public and could be an option. Entrance at 425 Boyd St, Los Angeles, CA 90013. Fees might be needed.

There are plenty of street parking spots around as well, or other possible parking facilities.

Aeros, AIAA, or the AIAA Los Angeles will not be responsible for parking.

Disclaimer: The views of the speakers do not represent the views of AIAA or the AIAA Los Angeles Section.

AIAA LA Section: General Contact: contact@aiaa-lalv.org, Events/Program events.aiaalalv@gmail.com

AIAA Mourns the Passing of James A. Lovell

by AIAA, 2025 August 14 (<https://aiaa.org/2025/08/14/aiaa-mourns-the-passing-of-james-a-lovell/>)

August 14, 2025 – Reston, Va. – The American Institute of Aeronautics and Astronautics (AIAA) issued the following statement by AIAA CEO Clay Mowry:

“AIAA joins the aerospace community in mourning the loss of Captain James A. “Jim” Lovell, U.S. Navy (Ret.).

As a Navy pilot and NASA astronaut who broke the barriers of air and space, he contributed immense knowledge to the aerospace community. His skills as an astronaut contributed to the U.S. establishing its preeminent leadership position in space.

Through piloting the Gemini 7 mission, he and Frank Borman demonstrated the first rendezvous of two manned maneuverable spacecraft. He then commanded the Gemini 12 mission with Pilot Edwin “Buzz” Aldrin, bringing the Gemini program to a successful close.

He later served as command module pilot and navigator in the Apollo 8 mission, the first human voyage to the moon. Along with his Apollo 8 crew members, Frank Borman and William A. “Bill” Anders, he became one of the first humans to leave Earth’s gravitational influence.



Captain James A. “Jim” Lovell, U.S. Navy (Ret.) | Credit: NASA

His contributions as the commander of the Apollo 13 mission – known as a successful failure – were remarkable. Our community understands the challenges and risks associated with space exploration. We are grateful for his iconic phrase, “Houston, we have a problem.” His legacy of level-headed problem solving and tireless teamwork will long be remembered.

AIAA was honored to recognize the entire crew of Apollo 13 – Fred W. Haise, Jim Lovell, and John L. “Jack” Swigert – with the AIAA Haley Astronautics Award. The citation reads, “For the exceptional manner in which the Apollo 13 crew conducted themselves and their spacecraft under extraordinary circumstances of extreme stress.”

The AIAA community sends our condolences to Capt. Lovell’s family and friends. The Institute is immensely grateful for his contributions to shaping the future of aerospace.”

Cover Page Description and Artwork Contributor

COVER ART



This month's cover illustration is by regular contributor James Vaughan. The painting depicts a hypothetical, dramatic moment of the Cold War. A gigantic transport looms over its ground crew on the frozen runways of a US Air Force base in Greenland. It is 1954 and this Douglas C-124 'Globemaster II' is unloading very special cargo at the Arctic Circle where the temperature hovers around minus 30 degrees. The first production version of a Hydrogen Bomb, the massive Mk-17, is being off-loaded. This accounts for all the security. The 'Globemaster' was the only transport able to carry the 41,000 lb. 24 foot long bomb of which 220 were built. The only bomber in the world that could carry it to a target was the ten engine B-36 'Peacemaker' of America's Strategic Air Command. The bombers rotated in and out of Thule, Greenland which served as a forward base several thousand miles closer to the USSR than bases in the continental United States. During times of superpower crisis B-36's would be moved up North and married to a Mk-17 H-bomb; then held ready to go at a moments notice. Just a single plane so configured... had more destructive force than all the bombs, bullets and shells of World War II combined.

James Vaughan <https://jamesvaughanphotoillus.com/>

(8/12) The New World on Mars: What We Can Create on the Red Planet, with Dr. Robert Zubrin *Photos Only* (<https://www.aiaa-lalv.org/blogs/2025-blogs/2025-august/2025-august-12>)



(Left) We were so blessed with the great opportunity with Dr. Robert Zubrin (right) and Dr. Jeff Puschell (left). Dr. Zubrin started the talk.



Dr. Bob Zubrin interacted with in-person attendees.



Dr. Zubrin is a dynamic and passionate speaker, book author, and promoter for the human settlement on Mars.



(8/12) The New World on Mars: What We Can Create on the Red Planet



Attendees (in-person and on-line) really learned a lot from Dr. Zubrin's talk, based on his book of the same title.



(Left) Dr. Puschell moderated the event, especially Q&A. (Right) Very enthusiastic questions from in-person attendees (on-line as well).



(Left) Mr. Mike Nygren asked good questions (also other attendees in person and on-line). (Right) Dr. Zubrin was so good addressing the questions.

(8/12) The New World on Mars: What We Can Create on the Red Planet



(Left) Dr. Zubrin listened carefully the questions from audience (in-person and on-line). (Right) A young attendee asked several core questions.



(Left) Dr. Puschell presented the AIAA LA Section appreciation certificate to Dr. Zubrin, signed by Section Chair, Mr. Luis Cuevas. (Right) Attendees were really inspired and fascinated.

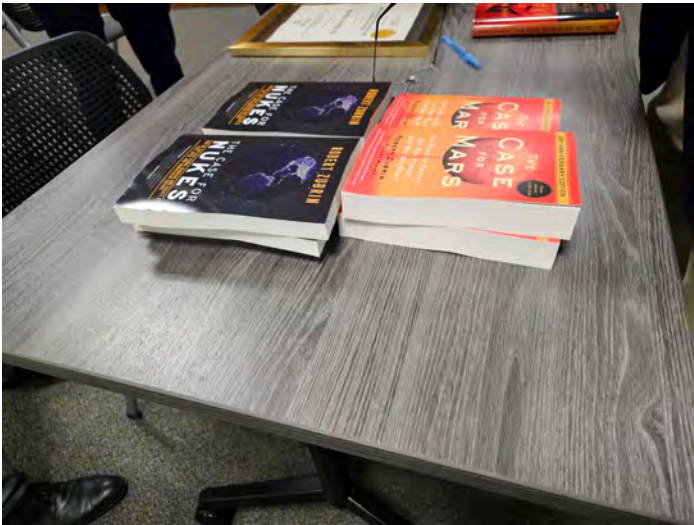


(Left) Dr. Zubrin, holding the new book, introduced it. He also encouraged the attendees / public to attend his Mars Society Convention at USC in October this year to know more about the efforts in Mars Settlement.

(8/12) The New World on Mars: What We Can Create on the Red Planet



(Left) We really appreciate the big help and moderation by Dr. Puschell. (Right) Attendees posed for taking photos with Dr. Zubrin.



By Creating an Open Future, Mars May Save Earth

GERMANY AND THE NEXT WAR
F. von BERNHARDI

RESOURCE WARS
Michael T. Klare

DESTINED FOR WAR
GRAHAM ALLISON

Bad ideas have bad consequences.
The idea of limited resources sets all against all.
History has shown it is false.

But we must refute it in a way that all can see.

The settlement of Mars will show that there is no point killing for provinces when by calling upon our better natures we can create planets.

Dr. Robert Zubrin

(Left) Dr. Zubrin's books for book signing. (Right) Dr. Zubrin's presented the case that by creating an Open Future, Mars can save Earth.

A House Divided?

"A house divided against itself cannot stand. I believe this government cannot endure permanently half slave and half free. I do not expect the Union to be dissolved — I do not expect the house to fall — but I do expect it will cease to be divided. It will become all one thing or all the other."

— Abraham Lincoln, June 16, 1858

The slaveocracy was defeated, yet humanity remains a house divided.
Mars may face a similar issue, But freedom will win there for the same reason it won here.



Key Question: What Will We Create When We Get There?

- The Technology?
- The Economy?
- The Political System?
- The Social Customs?
- The Architecture?



All Features of Future Martian Society are Up for Grabs.

Many Alternatives are Possible.

Diverse City States will Put Ideas to the Test.

The Outcome will be Determined by Natural Selection

(Left) Dr. Zubrin cited the words by Pres. Lincoln, saying the House Divided on Mars will be resolved as well. (Right) It's very important to think about the key questions: What Will We Create When We Get There on Mars?

Hybrid Aircraft One Step Toward the Future of Aviation

by AIAA, 2025 August 20 (<https://aiaa.org/2025/08/20/hybrid-aircraft-one-step-toward-the-future-of-aviation/>)

FROM THE INSTITUTE

Aircraft powered by hybrid-electric engines can bridge the gap between today's fossil-fuel jets and tomorrow's zero-emission aircraft, said Susan Ying, CEO of AMP2FLY, during the 2025 AIAA Wright Brothers Lecture in Aeronautics. Ying, an AIAA Fellow, used the lecture during the 2025 AIAA AVIATION Forum in July to unveil a practical roadmap for hybrid-electric flight for commercial aviation that will help achieve near net-zero emissions by 2050 and provide cleaner flights for short-hop routes for commercial success "within a few years."

[Full Story](#) (Aerospace America)



Susan Ying, CEO, AMP2FLY, delivers remarks during the 2025 AIAA Wright Brothers Lecture on Aeronautics at the 2025 AIAA AVIATION Forum, 23 July 2025, in Las Vegas, Nevada. | Credit: AIAA—©

AIAA Announces 2024-2025 Section Award Winners

by AIAA, 2025 August 4 (<https://aiaa.org/2025/08/04/aiaa-announces-2024-2025-section-award-winners/>)

August 4, 2025 – Las Vegas – AIAA announced its 2024-2025 section award winners during its Regional Leadership Conference in Las Vegas, Nevada. The section awards honor particularly notable achievements made by members of AIAA’s 58 sections around the world in a range of activities that help fulfill the Institute’s mission. Section awards are given annually in eight categories based on the size of each section’s membership. Each winning section receives a certificate and a cash award. The award period is 1 June 2024–31 May 2025.

“Across AIAA, local sections and student branches are where the action begins. We believe dynamic local communities are the core of AIAA member engagement. They’re essential to the Institute’s success. Congratulations to these sections and student branches for their noteworthy achievements!” said AIAA CEO Clay Mowry.

The Outstanding Section Award is presented to sections based upon their overall activities and contributions through the year. The winners are:

VERY SMALL

First Place: Delaware
Second Place: Wisconsin
Third Place: Adelaide

SMALL

First Place: Illinois
Second Place (tie): Greater Philadelphia
Second Place (tie): Indiana
Third Place: Palm Beach

MEDIUM

First Place: San Diego
Second Place: Tucson
Third Place: Tennessee

LARGE

First Place: Saint Louis
Second Place: North Texas
Third Place: Houston

VERY LARGE

First Place: Los Angeles
Second Place: New England
Third Place: Hampton Roads



2024-2025 AIAA Section Award winners at AIAA AVIATION Forum/ASCEND, 21-25 July 2025, Las Vegas, NV. | Credit: AIAA-© (Second to the left on the back row was the AIAA Los Angeles Section Chair, Mr. Luis Cuevas)

AIAA Announces 2024-2025 Section Award Winners

The Communications Award is presented to sections that have developed and implemented an outstanding communications outreach program. Winning criteria include level of complexity, timeliness, and variety of methods of communications, as well as frequency, format, and content of the communication outreach. The winners are:

VERY SMALL

First Place: Delaware, Zachary Gent (Northrop Grumman Defense Systems), section chair
Second Place: Central Coast of California, Matthew Tanner (United States Space Force), secretary
Third Place: Adelaide, Michael Evans (University of South Australia), university liaison officer

SMALL

First Place: Indiana, Hannah Snyderburn (Naval Surface Warfare Center), communications officer
Second Place (tie): Michigan, Pradip Sagdeo, section chair
Second Place (tie): Greater Philadelphia, Matthew Johnson (Saker Shoprites Inc), communications officer
Third Place: Long Island, David Paris, section chair

MEDIUM

First Place: San Diego, Steven Jacobson (General Atomics Aeronautical Systems Inc), secretary
Second Place: Carolina, Will Stavanja (USTRC), vice chair, Greensboro Chapter
Third Place: Tennessee, Phillip Kreth (University of Tennessee Space Institute), section chair; Taylor Swanson (AEDC), council member

LARGE

First Place: North Texas, James Sergeant, section chair
Second Place (tie): Northern Ohio, Edmond Wong (NASA Glenn Research Center), communications officer
Second Place (tie): Saint Louis, Mario Santos (The Boeing Company), communications officer
Third Place (tie): Albuquerque, Robert Malseed, treasurer
Third Place (tie): Houston, Kendall Mares (Jacobs), University Liaison Officer

VERY LARGE

First Place: Los Angeles, Kenneth Lui (Ken's Consulting), website editor officer
Second Place: New England, Aaryan Nagarkatti (GE Aerospace Research), social media officer;
DurgeshChandel (Massachusetts Institute of Technology), publicity officer
Third Place: Hampton Roads, Soumyo Dutta (NASA Langley Research Center), newsletter editor

AIAA Announces 2024-2025 Section Award Winners

The Membership Award is presented to sections that have supported their membership by planning and implementing effective recruitment and retention campaigns. The winners are:

VERY SMALL

First Place: Delaware, Zachary Gent (Northrop Grumman Defense Systems), section chair

Second Place: Wisconsin, Todd Treichel (Sierra Space), section chair

Third Place: Adelaide, Patrick Neumann (Neumann Space), section chair

SMALL

First Place: Illinois, Andrew Touvannas (Woodward Inc.), honors & awards chair; David Carroll (CU Aerospace LLC), vice chair

Second Place: Indiana, Anand Nageswaran Bharath (Cummins Inc.), STEM K-12 officer

Third Place: Michigan, Pradip Sagdeo, section chair

MEDIUM

First Place: San Diego, Joel Perez (Solar Turbines Inc.), regional advisory council representative

Second Place: Tucson, Dan Rouhani (Composite Construction), treasurer

Third Place: Carolina, Monika Bubacz (Boeing Company), treasurer

LARGE

First Place: Saint Louis, Alex Friedman (The Boeing Company), membership officer

Second Place: North Texas, James Sergeant, section chair

Third Place: Northern Ohio, Jonah Sachs-Westone (NASA Glenn Research Center), membership officer

VERY LARGE

First Place: Los Angeles, Sherry Stukes, membership officer

Second Place (tie): Greater Huntsville, Terri Tramel, membership officer

Second Place (tie): New England, Osa Osaretin (MIT Lincoln Laboratory), treasurer; Hiro Endo (Schenck USA Corp Test Devices by Schenck), advisor; Peter Dentch (Pratt & Whitney), STEM K-12 officer; Jimmy Wetzel (Charles Stark Draper Laboratory Inc.), vice chair

Third Place (tie): Dayton-Cincinnati, Caleb Barnes (AFRL/RQVA), membership officer

Third Place (tie): Hampton Roads, Richard Winski (NASA Langley Research Center), membership officer

AIAA Announces 2024-2025 Section Award Winners

The Public Policy Award is presented for stimulating public awareness of the needs of aerospace research and development, particularly on the part of government representatives, and for educating section members about the value of public policy activities. The winners are:

VERY SMALL

First Place: Wisconsin, Todd Treichel (Sierra Space), section chair
Second Place: Adelaide, Patrick Neumann (Neumann Space), section chair
Third Place: Delaware, Di Ena Davis, public policy officer

SMALL

First Place: Palm Beach, Shawna Christenson (Aerospace and Innovation Academy), public policy officer
Second Place: Illinois, Mordechai Levin (MasterFlight Foundation), public policy officer
Third Place: Phoenix, Aiden Bramer (Chipton-Ross), former section chair

MEDIUM

First Place: San Diego, Mike Curtin, public policy officer
Second Place: Carolina, Theodoros Spanos (Boeing Company), past chair

LARGE

First Place: Houston, Christine Dubbert, program officer
Second Place: North Texas, James Sergeant, section chair
Third Place: Albuquerque, Mark Fraser (U.S Air Force), public policy officer

VERY LARGE

First Place: Hampton Roads, Steven Dunn (Amentum), public policy officer
Second Place: National Capital, Michael Barton (a.i. solutions Inc), vice chair operations officer
Third Place (tie): Rocky Mountain, Lisa Luedtke (Lockheed Martin Space Systems), public policy officer
Third Place (tie): Los Angeles, Daniel Scalese (University of Southern California), public policy officer

AIAA Announces 2024-2025 Section Award Winners

The STEM K–12 Award is presented to sections that have developed and implemented an outstanding STEM K–12 outreach program that provides quality education resources for K–12 teachers in the STEM subject areas. The winners are:

VERY SMALL

First Place: Delaware, Kirstin Walz (Northrop Grumman Mission Systems), STEM K-12 officer

Second Place: Wisconsin, Ruby Kleijwegt (Sierra Space), communications officer

Third Place: Central Coast of California, Thomas Stevens (Space Launch Delta 30), STEM K-12 officer

SMALL

First Place: Palm Beach, Kevin Simmons (BLUECUBE Aerospace), STEM K-12

Second Place: Illinois, Pamela Greyer (NASA Aeronautics Education Laboratory), STEM K-12 officer.

Third Place (tie): Northern New Jersey, Yin Chen (US Army ARDEC), honors and awards chair

Third Place (tie): Northwest Florida, Crystal Pasillao (Air Force SEEK EAGLE Office), STEM K-12 officer

MEDIUM

First Place: San Diego, Rich Kenney (AeroED Group), STEM K-12 officer

Second Place: Tennessee, Meghan Morris (University of Tennessee Space Institute), outreach coordinator

Third Place: Tucson, Rajka Corder (Raytheon), former STEM K-12 officer

LARGE

First Place: Saint Louis, Jackie Blumer (Greenville Jr High School), STEM K-12 officer

Second Place: Orange County, Binay Pandey, STEM K-12 officer

Third Place: Cape Canaveral, Melissa Sleeper (Holy Trinity Episcopal Academy), STEM K-12 officer

VERY LARGE

First Place: Los Angeles, Arpie Ovsepyan (Herbert Hoover High School), STEM K-12 officer

Second Place (tie): National Capital, Susan Bardenhagen, STEM K-12 officer

Second Place (tie): Hampton Roads, Karen Berger (NASA Langley Research Center), STEM K-12 officer; Franklin Turbeville (NASA Langley Research Center), young professionals officer

Third Place: Dayton-Cincinnati, Jose Camberos (Air Force Research Laboratory), STEM K-12 officer; Samuel Atchison (Air Force Institute of Technology), deputy director STEM K-12 outreach officer

AIAA Announces 2024-2025 Section Award Winners

The Section-Student Branch Partnership Award recognizes the most effective and innovative collaboration between professional section members and student branch members.

VERY SMALL

First Place: Adelaide, Zehao Liu (University of Adelaide), student branch liaison

Second Place: Wisconsin, Ander Baumann (Sierra Space), young professionals officer

Third Place: Delaware, David McGrath (Northrop Grumman Defense Systems), technical officer

SMALL

First Place: Illinois, Laura Villafaña Roca (University of Illinois at Urbana-Champaign), section chair; Matthew Brotnow, university liaison officer

Second Place: Twin Cities, Robert Halverson, university liaison officer

Third Place: Greater Philadelphia, Chris Reynolds (Lockheed Martin Space Systems), STEM K-12 officer

MEDIUM

First Place: San Diego, Gary Fogel (Natural Selection Inc.), students activities officer

Second Place: Tucson, John Allen (University of Arizona), young professionals officer

Third Place: Southwest Texas, Christopher Combs (University of Texas at San Antonio), section chair

LARGE

First Place: North Texas, Mauricio Nava (University of Texas, Arlington), student branch chair of UTA; Ben Jeffery (University of Texas, Arlington), chapter chair of UTA

Second Place: Saint Louis, Joseph Richard (Boeing), university education officer

Third Place: Houston, Kendall Mares (Jacobs), STEM K-12 officer

VERY LARGE

First Place: New England, Shreyas Hegde (Pratt & Whitney), section chair; Jimmy Wetzel (Charles Stark Draper Laboratory Inc.), vice chair; Osa Osaretin (MIT Lincoln Laboratory), treasurer; Peter Dentch (Pratt & Whitney), STEM K-12 officer; Durgesh Chandel (Massachusetts Institute of Technology), publicity officer; Nandita Hari (GE Aerospace Research), professional development officer

Second Place: Los Angeles, Ian Clavio (Northrop Grumman Aeronautics Systems), university education officer

Third Place: Rocky Mountain, Lynne George (University of Colorado), outreach officer

AIAA Announces 2024-2025 Section Award Winners

The Young Professional Activity Award is presented for excellence in planning and executing events that encourage the participation of the Institute's young professional members, and provide opportunities for leadership at the regional, or national level. The winners are:

VERY SMALL

First Place: Delaware, Kirstin Walz (Northrop Grumman Mission Systems), STEM K-12 officer

Second Place: Wisconsin, Maddie Shipshock (Sierra Space), university and industry partnership officer

Third Place: Adelaide, Daniel Kilonzo (University of Adelaide), vice chair

SMALL

First Place: Palm Beach, Karl Roush (Georgia Institute of Technology), young professionals officer

Second Place: Greater Philadelphia, Jonathan Moore (Lockheed Martin Space Systems), section chair

Third Place: Indiana, Michael Nunez (Rolls-Royce Corp), STEM K-12 co-chair

MEDIUM

First Place: San Diego, Jema Matthews, young professionals officer

Second Place: Tucson, Dan Rouhani (Composite Construction), treasurer

Third Place: Antelope Valley, Isabella Villano, technical vice chair

LARGE

First Place: Saint Louis, Kyler Schaetzle (Boeing Engineering Operations & Technology), young professionals officer; Paola Diaz-Portela, co-chair young professionals

Second Place: Houston, Andrzej Jackowski (NASA Johnson Space Center), social media officer

Third Place: North Texas, James Sergeant, section chair

VERY LARGE

First Place: Los Angeles, Luis Cuevas (Lockheed Martin Aeronautics), section chair

Second Place: New England, Shreyas Hegde (Pratt & Whitney), section chair; Jimmy Wetzel (Charles Stark Draper Laboratory Inc.), vice chair; Osa Osaretin (MIT Lincoln Laboratory), treasurer; Peter Dentch (Pratt & Whitney), STEM K-12 officer; Durgesh Chandel (Massachusetts Institute of Technology), publicity officer; Nandita Hari (GE Aerospace Research), professional development officer

Third Place: Greater Huntsville, Bob Tramel

AIAA Announces 2024-2025 Section Award Winners

The Outstanding Activity Award allows the Institute to acknowledge sections that held an outstanding activity deserving of additional recognition. The winners are:

VERY SMALL:

Central Coast of California, 40th Annual AIAA Central Coast STEM Exposition. The 40th Annual Central Coast STEM Exposition, held 2–3 May 2025 at Cabrillo High School, supported 80 projects, over 140 students, and five schools participating with the aid of over 50 judges and 10 other volunteers from across Vandenberg Space Force Base. Over \$1,500 in cash and plaques sponsored by local professional organizations and companies were awarded to the top scored students at the awards reception attended by over 160 students, parents, teachers, and administrators. On Saturday, 3 May, two FIRST Robotics Competition (FRC) teams from Arroyo Grande and Santa Ynez High Schools demonstrated their current robots to attendees. Also present were members of Darth Vader's 501st Legion in full costume regalia for photo ops. Col. Mark Shoemaker, Space Launch Delta 30 Commander, was keynote speaker, and Christina Settje, Crestview Elementary School Principal, welcomed the attendees. Long-time participating teacher Karen Hamner, science teacher at La Honda STEAM Elementary School, was recognized for her decades of service to this event. A partnered team of contractors, professional organizations, school district representatives, and base personnel come together annually to make this event a success. It was a great team effort between the base and the Lompoc Unified School District!

SMALL:

Sydney, Disappearance and Search for VH MDX. In collaboration with RAeS UNSW ADFA and NSW SES Bush Search and Rescue, AIAA Sydney Section held an event to examine one of the greatest unsolved aviation mysteries in Australia. During the night of 9 August 1981, a Cessna 210 VH-MDX, on a flight to Sydney with five people on board, disappeared over the area of Barrington Tops. Forty years later, despite annual searches by NSW SES Bush Search and Rescue, the airplane and its occupants have still not been found. Glenn Horrocks, Deputy Unit Commander, NSW SES Bush Search and Rescue Unit, discussed his 30-year research efforts and years of searching for the lost airplane and its passengers. About 100 people attended in person, with another 500+ views of the recording on the section's YouTube channel.

MEDIUM:

Tucson, Kitt Peak Observing Program with AIAA Tucson Section. On 26 October 2024, the local community and AIAA members were invited to a night under the stars at the Kitt Peak National Observatory's Visitor Center. During this special program, hosted by AIAA Tucson, participants spent four hours gazing through several of the very large and world-renowned telescopes to view the wonders of the universe.

AIAA Announces 2024-2025 Section Award Winners

LARGE:

Louis, STEM in Action: Engineering the Future at the Challenger Learning Center. On 6 February 2025, the AIAA St. Louis Section partnered with the Challenger Learning Center (CLC) to provide 40 middle school students from an underrepresented rural community in Missouri with the chance to execute a hands-on simulated space mission to Mars. The CLC St. Louis site features an immersive space mission simulation environment, including a mission control room and a spacecraft, where participants must cooperate to learn and succeed together. The students and their teachers from Strain-Japan Elementary (K-8) began the event with a hands-on rocket-making activity in the afternoon. Then students were introduced to 20 AIAA St. Louis Section volunteers, including AIAA Student Members, Young Professionals, Senior Members, and Educator Associates. During a Q&A session students were able to ask real engineering students and professionals questions like, “how much money does an engineer make,” “what were your favorite subjects in school,” and “why can’t you talk about your [DoD classified] statement of work?” Next students were assigned to either a Mission Control post or Crew Module position, and with a nearly 1-to-1 volunteer-to-student ratio were able to exercise their STEM skills to execute a Mars science mission. This included the Space Weather team flagging concerns of a nearby asteroid, and the Crew Module being safely extracted from planet surface and back to the orbiting station. Following an asteroid impact near Mars surface biology and geology operations, the Mission Control and Crew Module teams were swapped so that the former team could conduct damage control and rescue operations. By the end of the event, the students had learned many lessons such as 1) what it means to be a “real” engineer; 2) why science, technology, engineering, and mathematics are important fields to pursue; 3) how to work together as a team, using STEM skills to dynamically solve problems in real time; and 4) why safety and human factors are so paramount to space travel.

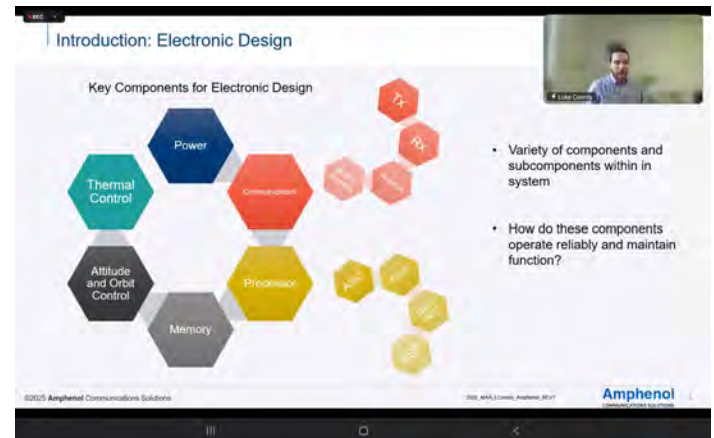
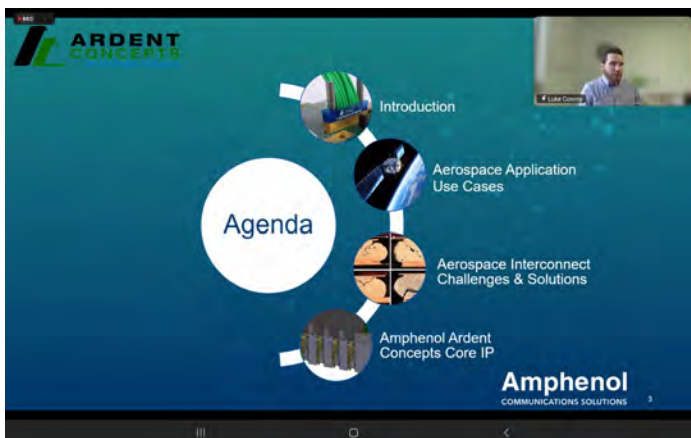
VERY LARGE:

Los Angeles, Recognition: AIAA Honorary Fellow Class of 2024, Professor Azad Madni of USC. The AIAA Los Angeles Section held an event in August 2024, with the University of Southern California to recognize Class of 2024 AIAA Honorary Fellow Azad Madni. It was a great opportunity to learn more about Prof. Azad Madni’s inspiring life and career, and his great accomplishments and contributions.

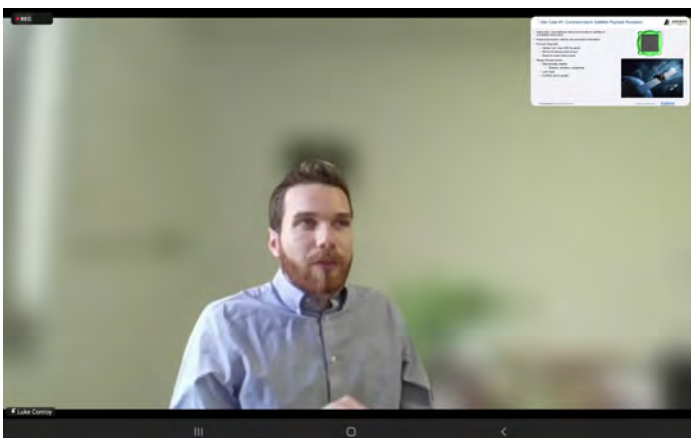
(8/23) Ku/K/Ka Band Innovation in Space & Defense: TR Multicoax and Flight-Ready Socket Solutions (Photos Only) <https://www.aiaa-lalv.org/blogs/2025-blogs/2025-august/2025-august-23>



(Left) It was a beautiful Saturday morning with some practicing Yoga outside Lawndale Library. (Right) The Speaker, Mr. Luke Conroy.



(Left) Mr. Luke Conroy introduced the outline of his presentation. (Right) Basics of Electronics Design and the relevance to it.





(Left) Mr. Luke Conroy, the Speaker/Presenter, on-line. (Right) He talked about the application cases, including Satellite Communication.

(8/23) Ku/Ka Band Innovation in Space & Defense: TR Multicoax and Flight-Ready Socket Solutions *(Photos Only)*



Use Case #2: Airborne Phased Array Radar (APAR)

- Application: In-flight phased array radar for storm/weather data collection
- Beamforming electronics placed in shielded container on outside of plane for direct radar transmission
- Product Requests
 - Cables from board to panel
- Design Requirements
 - Low mass
 - High signal density
 - High electrical bandwidth
 - Mechanically reliable
 - Thermal, vibration

Use Case #3: Phased Array Radar

- Application: Ground based system, Phased Array Radar
- Flex to board connectors used to connect control electronics to the radiating elements on the antenna
- Product Request:
 - Flex to board connector
 - Footprint compatible cables for validation
- Design Requirements
 - High signal density
 - Mechanically reliable
 - Thermal, vibration

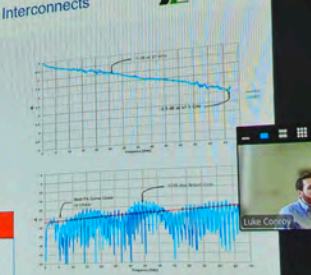




Use cases in the Airborne and Ground Phased Array Radar systems.

Solutions for Designers #4: High Performance Interconnects

High Performance Interconnects

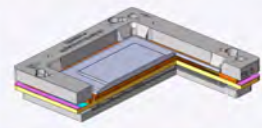


- Interconnects that are well designed for Ku/Ka band signaling (12-40 GHz) are imperative to deliver more data across systems
- Faster operating frequencies and modulation schemes mean also smaller physical lanes, decreasing mass, size and costs

Solutions for Designers #1: Solderless & Compression Interconnects

Solderless & Compression Mount Interface

- Solderless compression mount technology is available for a variety of products including:
 - Sockets for Packages/Devices
 - Board to Board Connectors
 - Cable Assemblies
- These all deliver the benefits of long term reliability in harsh environments while also offering easy serviceability if they need to be disconnected or reused.

(Left) Projection snapshot: high performance interconnects. (Right) Innovative solutions to the application use case: Satellite Communication.

Solutions for Designers #2: High Density Interconnects

Signal Density

- To achieve high density over individual cables, ganging together several cables into assemblies with shared tooling minimizes the overall required footprint
- To match a small device footprint, sockets with tight pitch contacts are required



Solutions for Designers #3: Customization with Heritage

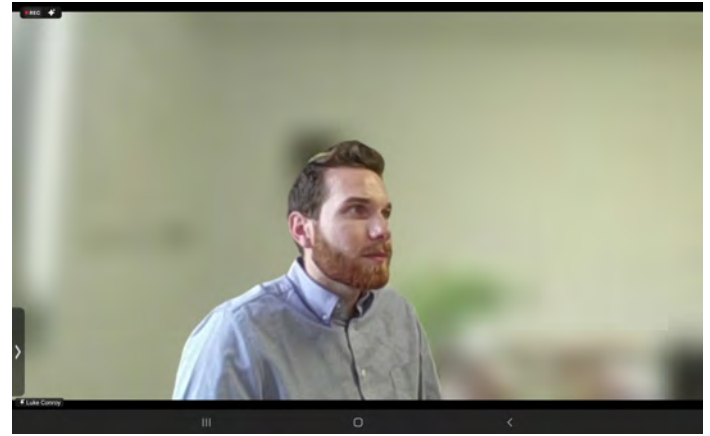
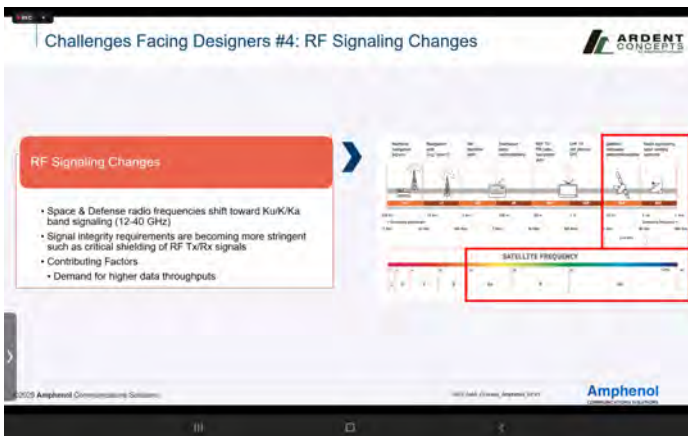
Customization of Commercial Connectors

- Beyond material selection, it may be necessary to customize the physical shape or geometries of connectors
- This can be done to minimize mass
- Customizations can also help interconnects integrate into complex or small systems

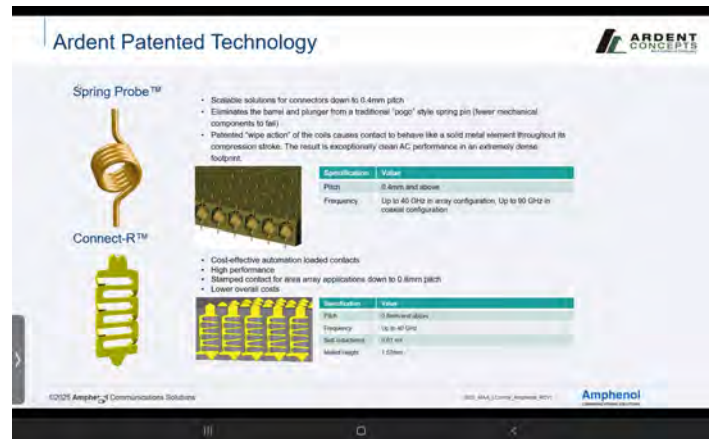
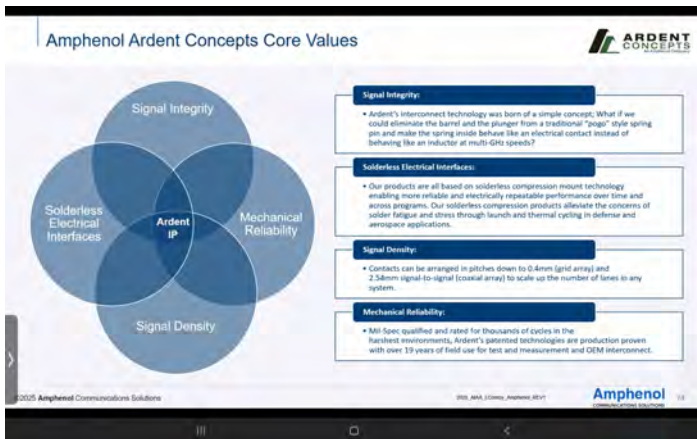



Amphenol Arden Concepts provided the innovative solutions for Phased Array Radar systems as well.

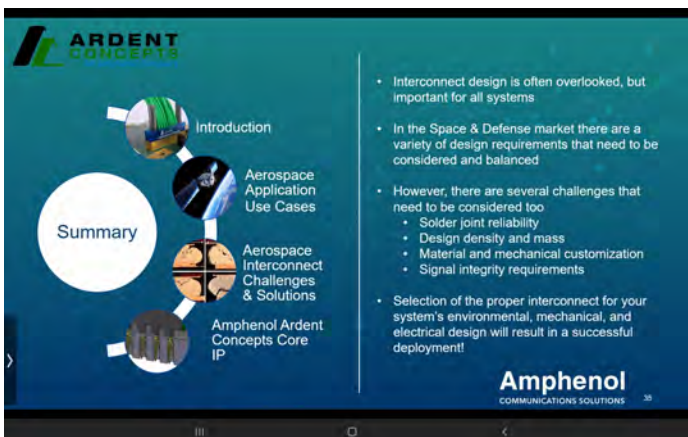
(8/23) Ku/K/Ka Band Innovation in Space & Defense: TR Multicoax and Flight-Ready Socket Solutions *(Photos Only)*



Mr. Luke Conroy talked about the changes into Ku/K/Ka Band in Space and Defense applications.



(Left) Amphenol Arden Concepts Core Values, and (Right) Ardent Patented Technology.



Mr. Luke Conroy summarized his presentation and answered many exciting questions.

(8/16) AIAA LA Outreach to the Rocket Fever Festival at Downey Columbia Memorial Space Center (Photos Only) (<https://www.aiaa-lalv.org/blogs/2025-blogs/2025-august/2025-august-16>)



(Left) AIAA Los Angeles had a booth in this wonderful Rocket Fever event at Downey CMSC. (Right) Evan, Branch Chair of AIAA UCLA Student Branch, at their rocket club booth.



(Left) AIAA CSULB Student Branch had a table their as well next to AIAA LA Section. (Right) Other groups setting up booths as well.

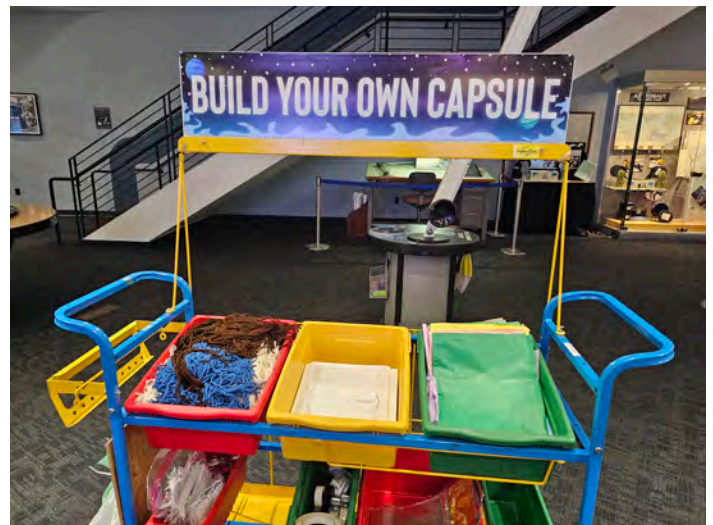
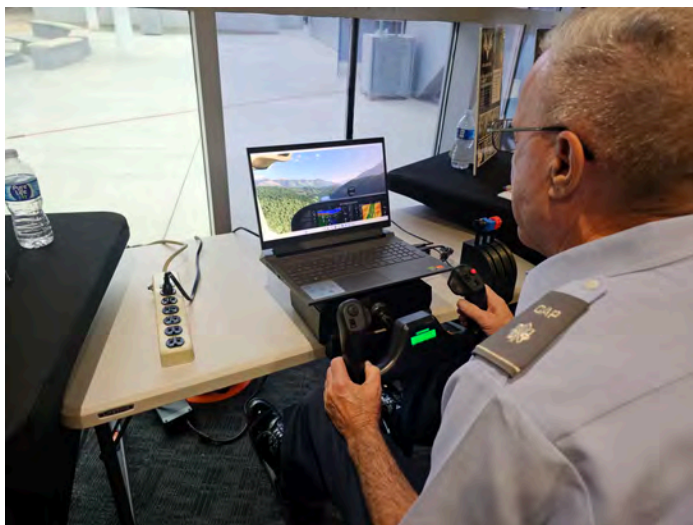


(Left) Laura was amazing and helped pulling things together! (Right) Liam (Mr. Kennedy) had an amazing booth with his ISSAbove.

(8/16) AIAA LA Outreach to the Rocket Fever Festival at Downey Columbia Memorial Space Center *(Photos Only)*



(Left) Images from ISSAbove's camera on ISS showed amazing picture of wildfire in N. CA as well. (Right) Selfie with Liam (left).



(Left) Civil Air Patrol had a flight simulator at their booth. (Right) Materials for the parachute/capsule STEM learning demo.



(Left) Capsule / parachute loading and deployment area. (Right) Children and adults all enjoyed the capsule launch, with a Star-War figure!

(8/16) AIAA LA Outreach to the Rocket Fever Festival at Downey Columbia Memorial Space Center *(Photos Only)*



(Left) Relativity Space also had a fantastic booth next to AIAA LA Section and CSULB booths. (Right) Folks posed at AIAA Los Angeles Section Table.



Surprise! Volunteers in the Star-War / Jedi Knight costumes showed up and posted for photos with attendees!

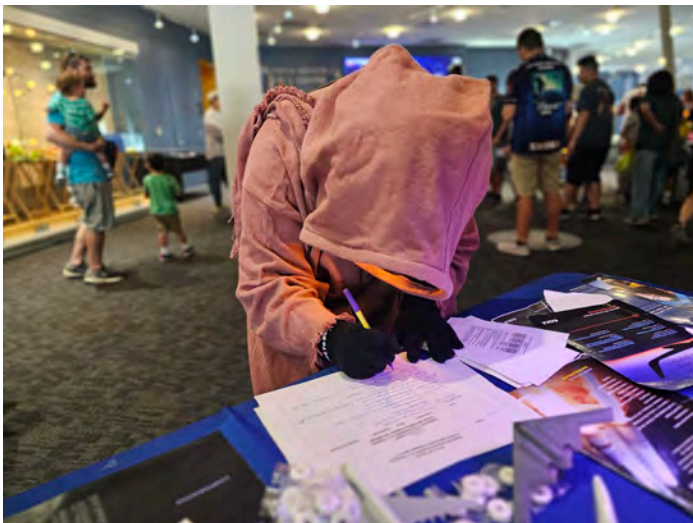


(Left) Cosplay in the space suits! (Right) Attendees playing together!

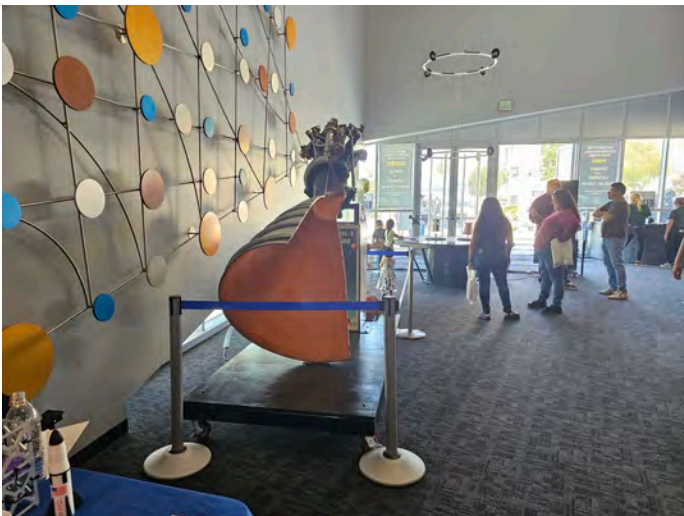
(8/16) AIAA LA Outreach to the Rocket Fever Festival at Downey Columbia Memorial Space Center *(Photos Only)*



(Left) Darth Vader and the Stormtrooper! (Right) Inter-galactic species holding airplane model from the AIAA Los Angeles Section Table!



(Left) An intergalactic visitor was very impressed by AIAA and the Los Angeles Section. (Right) More cosplay!



(Left) Rocket Engine model display at the Columbia Memorial Space Center. (Right) AIAA LA Section Table was next to it.

(8/16) AIAA LA Outreach to the Rocket Fever Festival at Downey Columbia Memorial Space Center *(Photos Only)*



(Left) Front Desk/Lobby at Downey CMSC. (Right) Wonderful display at the entrance.

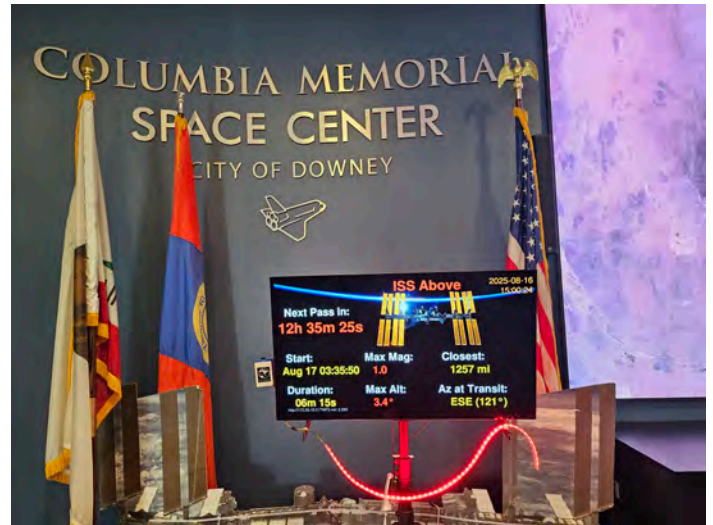


(Left) People taking or posing for group photos. (Right) Upon entrance, one can see the huge Columbia Shuttle art on the Wall.



(Left) A space suit for display. (Right) Children enjoyed hands-on activities and displays at the AIAA Los Angeles Section Table.

(8/16) AIAA LA Outreach to the Rocket Fever Festival at Downey Columbia Memorial Space Center *(Photos Only)*



(Left) Mr. Liam Kennedy explained his ISSAbove imagery to visitors. (Right) Real-time ISS Tracking.



(Left) Rocket displays at the AIAA LA Section table (mostly donated by Mr. Dennis Leung). (Right) More playing in the capsule area.



(Left) The video made by Ms. Arpie Ovsepyan (AIAA LA K-12 STEAM Outreach Chair). (Right) AIAA video with AIAA CEO Mr. Clay Mowry.

(8/16) AIAA LA Outreach to the Rocket Fever Festival at Downey Columbia Memorial Space Center *(Photos Only)*



Wonderful student volunteers with Downey CMSC! Thanks a lot for their help and support! (On the wall to the right, one can see the photos of the 7 astronauts on STS-107.)

(8/13) Young (Early Career) Professionals Mixer with AIAA Los Angeles Section

(Photos Only) (<https://www.aiaa-lalv.org/blogs/2025-blogs/2025-august/2025-august-13>)



(Left) Attendees gradually arrived and joined the networking, enjoying donuts, too! (Right) People happily shared the thoughts and news. Middle in light green short is the AIAA Los Angeles Section Chair, Luis Cuevas.



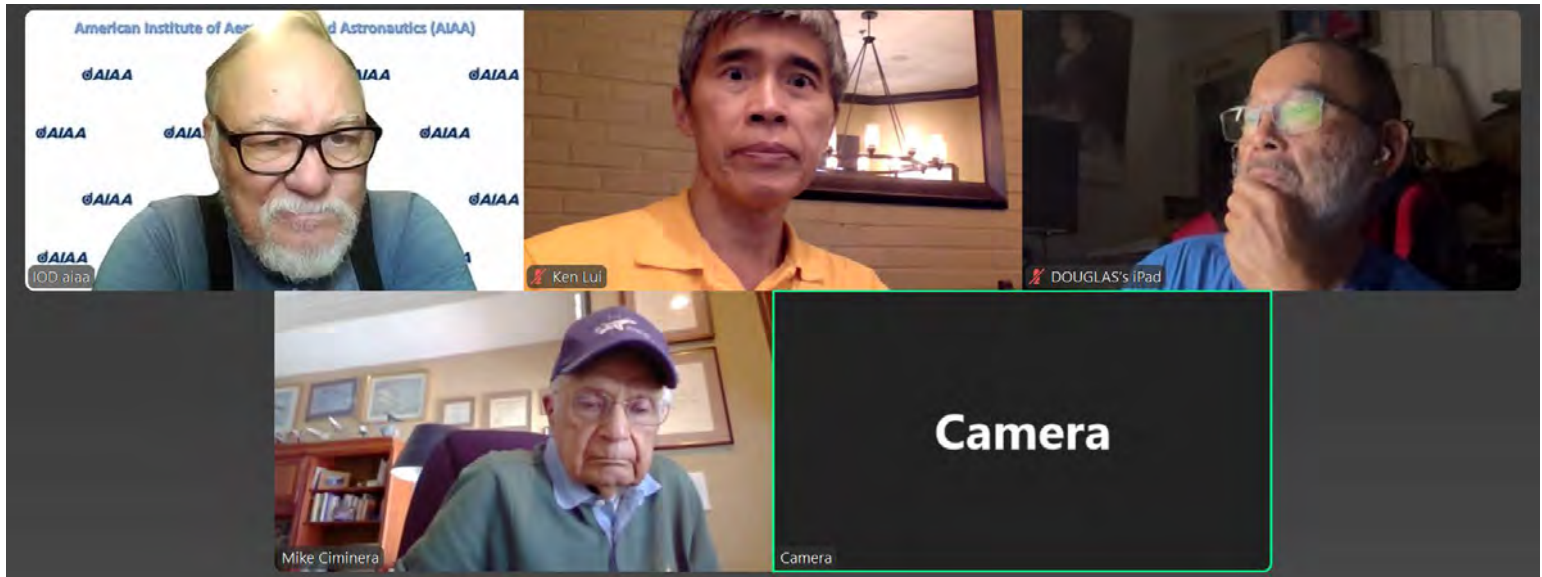
Some attendees also attended the Mars event the previous evening with Dr. Zubrin, and shared their thoughts. (In blue shirt: Mike Nygren)



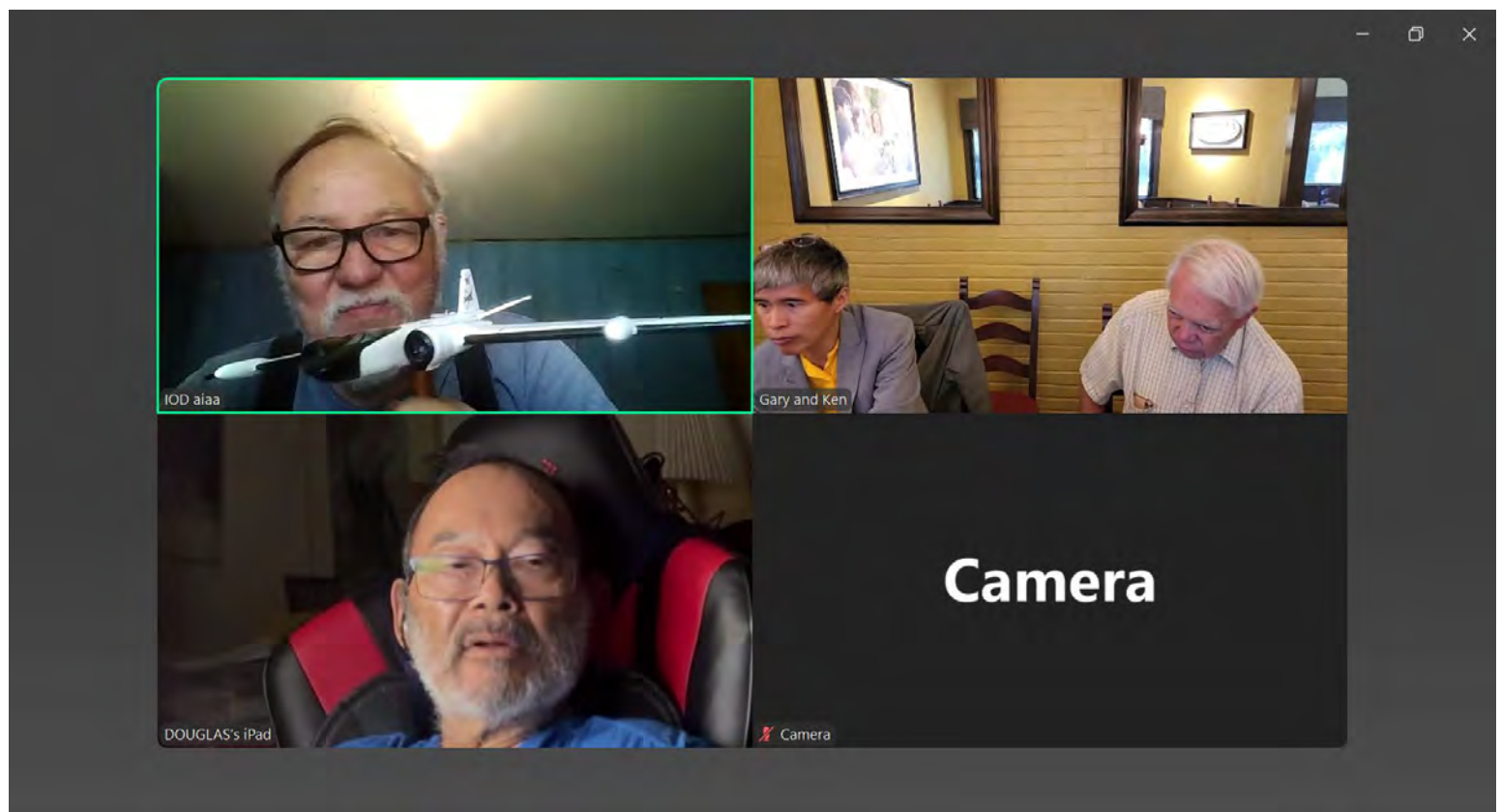
The in-depth conversations about Mars, industrial news, and career / opportunities were very friendly and beneficial, supporting each other.

(8/20) AIAA LA Aero Alumni (Retirees from aerospace industries) Meeting

(Screenshots & photos) (Contact: gary.moir@ingenieur.com) (<https://www.aiaa-lalv.org/blogs/2025-blogs/2025-august/2025-august-20>)



Attendees gathered in this month's retiree's meeting (Aero Alumni) in the hot summer with in-depth and fun conversations about recent news and history of aerospace.



Mr. Kevin Burns (upper left) immediately pulled out from his model collections a model of cold-war era surveillance aircraft, when attendees mentioned the U-2 spy plane.

My search for comets

by Dr. David H. Levy, Comet and Asteroid Hunter, Co-Discoverer, Shoemaker-Levy 9 (2025 August article)



Doveed with Cupid the Questar, the summer before our Adirondack Astronomy Retreat began.

The 2025 version of the Adirondack Astronomy Retreat, now in progress, may (or may not) be our last one. It is a chance for star gazers to gather, enjoy the fabulous night sky, and rediscover why we fell in love with the sky in the first place.

We have already had two fabulous nights. Tuesday night, July 22, was a bit hazy but David Cotterrell photographed some apparent haze in the north northeast that turned out to be a faint glow of the aurora borealis. Then visually, I detected a faint greenish glow for some time thereafter. This event reminded me of my first major auroral display. That one happened right here, on 8 July 1966. That was the night that twilight never ended. The twilight glow moved over towards the north, evolved into a bright auroral glow, a rayed arc, and lasted all night with a flaming beautiful light. As weak as Tuesday's glow was, I did see several rays pop out. I did 3.6 hours of comet hunting that night.

As wonderful as Tuesday night was, it is difficult to compare it to Monday night. That might be the best sky, or surely one of the best, that I have ever seen anywhere. Not only did Messier 31, the Andromeda Galaxy, appear visible to the unaided eye, but also Messier 33 in Triangulum, became easier and easier to see as it arose out of the small microclimate cloud that was hovering over nearby Lake Champlain. Later, that cloud covered most of the sky. But when it dissipated later in the night, the Triangulum galaxy was clearly a naked eye object. I completed 3.1 hours of comet searching that night.

My search for comets

The 2025 version of the Adirondack Astronomy Retreat, now in progress, may (or may not) be our last one. It is a chance for star gazers to gather, enjoy the fabulous night sky, and rediscover why we fell in love with the sky in the first place.

We have already had two fabulous nights. Tuesday night, July 22, was a bit hazy but David Cotterrell photographed some apparent haze in the north northeast that turned out to be a faint glow of the aurora borealis. Then visually, I detected a faint greenish glow for some time thereafter. This event reminded me of my first major auroral display. That one happened right here, on 8 July 1966. That was the night that twilight never ended. The twilight glow moved over towards the north, evolved into a bright auroral glow, a rayed arc, and lasted all night with a flaming beautiful light. As weak as Tuesday's glow was, I did see several rays pop out. I did 3.6 hours of comet hunting that night.

As wonderful as Tuesday night was, it is difficult to compare it to Monday night. That might be the best sky, or surely one of the best, that I have ever seen anywhere. Not only did Messier 31, the Andromeda Galaxy, appear visible to the unaided eye, but also Messier 33 in Triangulum, became easier and easier to see as it arose out of the small microclimate cloud that was hovering over nearby Lake Champlain. Later, that cloud covered most of the sky. But when it dissipated later in the night, the Triangulum galaxy was clearly a naked eye object. I completed 3.1 hours of comet searching that night.

I began my search for comets long ago on the night of 17 December 1965. That brief 10-minute search between Pollux and Castor in Gemini did not last long, but it was the start of a lifetime search that continues to this day. I no longer expect to find another new comet, but I enjoy the search itself as much as I ever did.

My comet search, which culminated in the discovery of Periodic Comet Shoemaker-Levy 9 by Gene and Carolyn Shoemaker and me, was clearly the highlight of my career. But it was only the second highlight of my life. Meeting and marrying Wendee was the first, and it will always be.

The week at our 2025 Adirondack Astronomy Retreat is one I shall never forget. The group of people here are by far the smartest bunch I have ever had the privilege of knowing. With the coming of darkness each night, I used Tranquilitatis, a lovely 20 cm. reflector that Mark Zdiarski brought with him. Particularly on Monday night, I used it to spot a cacophony of galaxies in and near the Big Dipper, galaxies I cannot see from my Vail, Arizona home because of the glow from Tucson to my northwest. As attractive as all these galaxies are, their beauty pales before the truly magnificent appearance of Messier 51, the Whirlpool, and perhaps even more so with the advent of Messier 81, that attractive spiral in Ursa Major, and its enigmatic neighbor Messier 82. With these three galaxies, and later the Moon and Venus gently rising over nearby Ferguson Mountain, my night comes to an unforgettable conclusion.

Shoemaker-Levy 9-style multiple impacts on Earth?

by Dr. David H. Levy, Comet and Asteroid Hunter, Co-Discoverer, Shoemaker-Levy 9 (2025 September article)

Thirty-two years ago, Carolyn and Gene Shoemaker and I discovered a comet that was eventually named Shoemaker-Levy 9. It was the ninth periodic comet that we found together, although there were a few other nonperiodic comets that we also located, plus the nine other comets I found on my own since I began my comet search in the fall of 1965. The discovery of this particular comet and its subsequent collision with Jupiter, coincidentally my favorite planet, were the most important parts of my professional life, second only to my meeting Wendee. Sixteen months after our discovery the 21 pieces of this shattered comet collided with Jupiter, in one of the most decisive science stories of the twentieth century. I may not have been aware of how significant this was until, at this year's Adirondack Astronomy Retreat, I watched the July 16, 1994, press conference during which Gene, Carolyn, and I tried to express the significance of this event. I remembered how much smarter I might have been back then, being able to speak in complete sentences, compared to my waning personality now. What I was not aware of back then is that what we were witnessing might have been an example not only for our own lifetimes but for the vastly larger history of the Earth we live on.

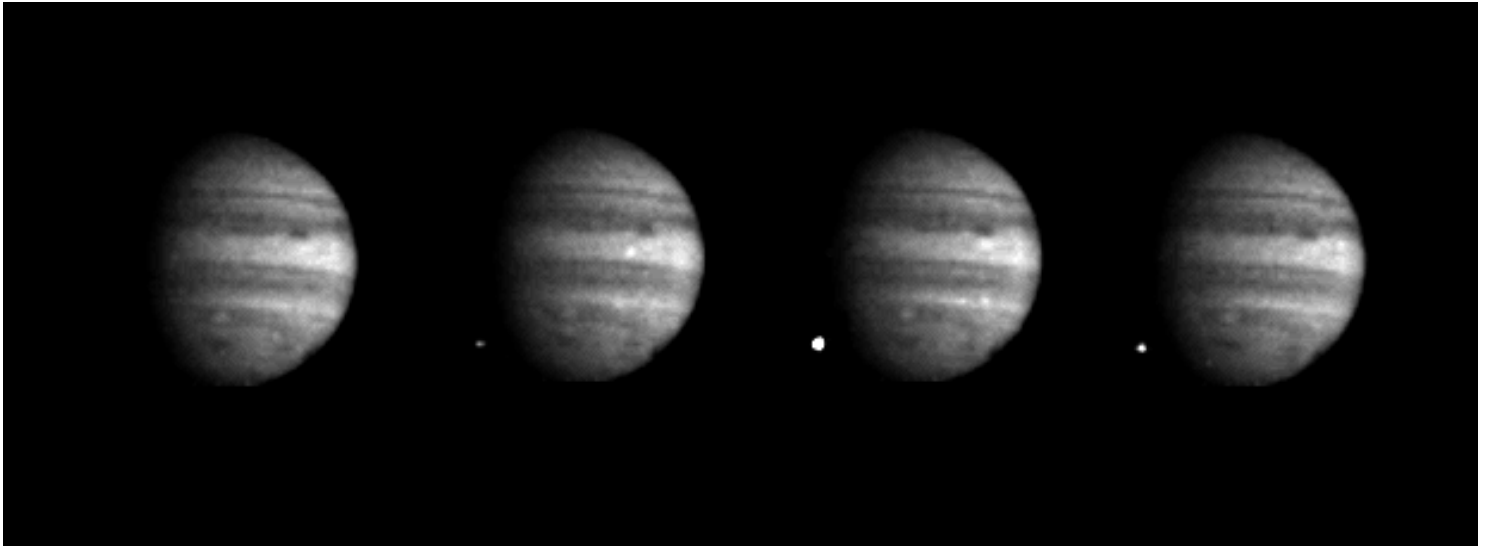


Comet Shoemaker-Levy discovery films March 23 1993

Sixty-six million years ago, the Cretaceous period of Earth's geologic history ended rather abruptly with the mass extinction of about three quarters of all the species of life on Earth. The theory proposed by Luis Alvarez and his son Walter was based on the large amount of iridium that was found at exposed rock sites all over the world. The discovery in the early 1990s of the 200-mile wide impact crater whose center was near the coastal town of Chicxulub Pueblo, in present-day Mexico, began a long stretch of evidence that leads most scientists to conclude that the impact of an asteroid (or less likely a comet) had a lot to do with the Cretaceous-Paleogene mass extinction.

More recently, some evidence has emerged that the impact in the Gulf of Mexico was not the only one that occurred at that time. The 15-mile wide Boltysh crater in Ukraine, and the 12-mile wide Silverpit crater in the North Sea, not far from Great Britain, might have been formed at about the same time. These structures, and others that have been found or speculated, are all between North latitude 20 and 70 degrees.

Shoemaker-Levy 9-style multiple impacts on Earth?



Galileo spacecraft image of Fragment W impacting Jupiter, July 21, 1994.

Could these structures be impact craters, and if they are, could they have formed in connection with the Cretaceous–Paleogene extinction? This suggests the possibility of near-simultaneous multiple impacts. But the operative word has to be “suggests.” The evidence is there, but it is speculative and not strong, that the Chicxulub impactor might have been just one of a series of impacts. According to a paper by Krisopher Dekan of the University of Gothenburg, “To conclude that a mass extinction of this sort is not associated with immense extraterrestrial impact is to break the rules of a respected scientist. There is too much evidence in favor of a least two large impacts and no other factor can explain the (Iridium) anomaly that is globally widespread in both sides of the paleomagnetism of that time, being normal and reverse near the K/Pg boundary.”

We will never know what upended the Earth’s biosphere 66 million years ago, because we were not there. But at this juncture I would like, not to ignore the methods of modern science, but to take science out for a walk in the desert. We will never know, but what if a Shoemaker-Levy 9-style multiple impact is what caused the elimination of most of the species of life on Earth?

What if? I think it is fun to speculate on this question. From my own perspective, as I take that fictitious walk in the desert, my decision to begin hunting for comets when I was a teenager in 1965 might have led to a personal communion with a major event on the planet that has given me so much pain, and so much more joy.

The US Needs to Take Ukrainian and Russian Drone Operations Seriously

by Dr. Stephen Bryen, former Deputy Under Secretary of Defense, a leading expert in security strategy and technology, 2025 August 25 (<https://weapons.substack.com/p/the-us-needs-to-take-ukrainian-and>)

Drones have changed warfare on the battlefield and beyond. At present there are more drones than practical countermeasures, although that could possibly change in future. The preponderance of battlefield drones removes the shooter from the battlefield, preserving manpower, enhances target accuracy well beyond almost any other tool, and subjects traditional hardware, especially armor, to effective interdiction and immobilization, if not outright destruction.



Ukraine has the most advanced drone operations program today, followed by Russia, with the US and China far behind. Experts believe warfare has changed irrevocably, with the drone in the forefront of tactical battlefield changes. That is why Secretary of Defense Pete Hegseth on June 10th called for "Unleashing America's Drone Dominance." He foresaw a three point program. These were, First, to bolster US drone manufacturing. Second, Hegseth looked for a technological leapfrog" to arm US combat units with a variety of low cost drones and, Third, to improve training for the US military "as we expect to fight in future."

The US Needs to Take Ukrainian and Russian Drone Operations Seriously



<https://www.youtube.com/watch?v=OpiOoLSvmvU>

Hegseth's overall proposal, however, did not reform any sector sufficiently to obtain the end result he hoped to achieve. To do that, the US would need to adopt either the Ukrainian or Russian approach to supporting drone operations from the factory to the battlefield.

Both the Ukrainian model and the Russian one share some noteworthy similarities. Both aim at an efficient logistics system to deliver weapons to the battlefield where they are needed, both set up administrative systems to provide tactical information and set up feedback loops to continually adjust both tactics and product performance; and both offer specialized training focused on different drone types, such as FPV drones, unique drones like the Russian Lancet, and methods of intercepting drones. Both experiment aggressively with new tools to move forward literally anything that works, as rapidly as possible.

Hegseth's focus on efficient procurement is a correct step to "cut red tape" and start up production of "inexpensive" drones for the battlespace. Hegseth does not, however, focus on measuring results or feedback loops, so once a product is in serial production, there is no clear mechanism to make product changes to either hardware or software. Likewise there is no quick way to adjust operations and tactics, at least so far.

The US does improve weapons, but the system is slow. Drone warfare is rapidly evolving, and changes in hardware, software and tactics can change in days. Any drone manufacturing system needs the flexibility to change quickly and commanders need to be able to order changes without taking years to "convince" the procurement folks of the need and urgency.

The US Needs to Take Ukrainian and Russian Drone Operations Seriously

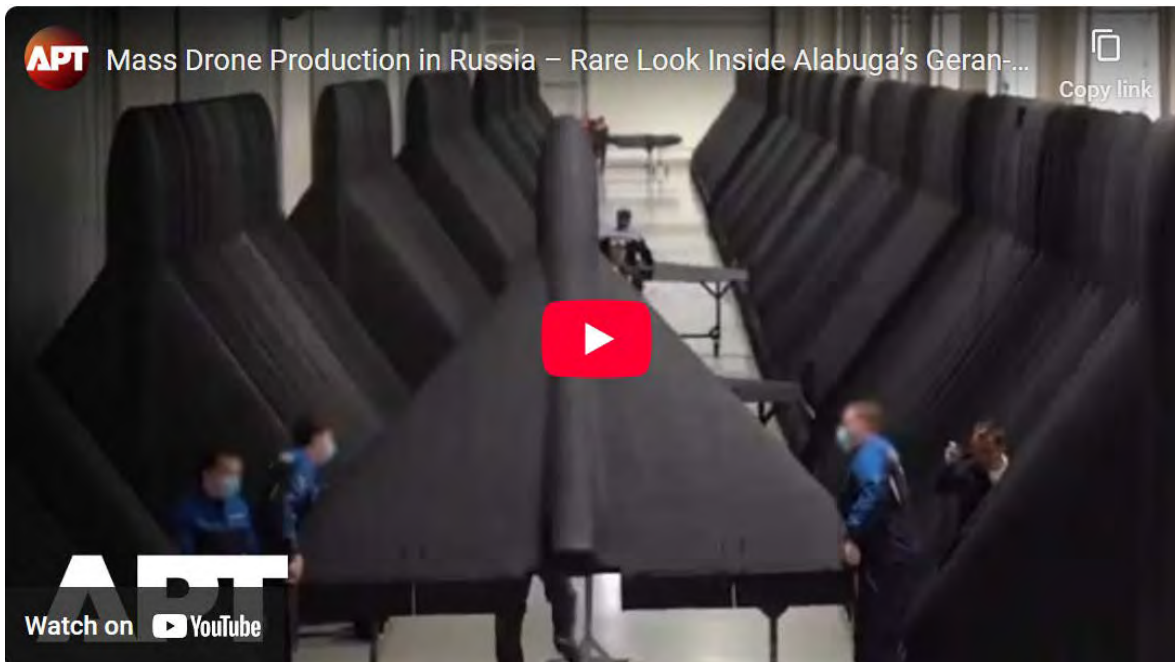


Black smoke rises from a damaged electronics manufacturing company after the Russian military hit a large American company producing civilian electronics with two missiles in Mukachevo, Zakarpattia region of Ukraine, Thursday.

Ukraine has been immensely successful in drone manufacturing, often channeling the work to small workshops, or to companies that previously built commercial items. According to the Russians, their recent attack on the Flex (previously Flextronics) plant in Mukachevo, western Ukraine, noteworthy for manufacturing coffeemakers, because it was allegedly making electronic assemblies for Ukrainian drones. Supporting the Russian claim, at least indirectly, is the fact that Russia used two expensive Iskander missiles to destroy large parts of the facility.

Russia has either repurposed factories or set up new ones to meet the expanding need for drones for the war in Ukraine. One of the most impressive is a greenfield factory run by civilians at Yelabuga, Tatarstan. It mass manufactures Geran-2 drones, based originally on Iran's Shahed 136 but with many local changes and improvements.

The US Needs to Take Ukrainian and Russian Drone Operations Seriously



<https://www.youtube.com/watch?v=5F9wFVvME0E>

Both Russia and Ukraine are importing many of the components needed for drone production, especially small drones that rely on cheap circuit boards and cameras and low cost controllers, batteries and electric motors. Ukraine gets parts from Europe, the US and Asia (including China). Russia, too, uses electronics and hardware from Asia and Europe.

The Pentagon seems to be going in a different direction emphasizing US manufacturing covering the entire supply chain. While it is possible the Defense Department can underwrite the costs associated with start up production of drone components, it is an expensive undertaking and it is hard to see why it is necessary. A better approach would be to identify suppliers outside the US that can manufacture key components competitively and rapidly, focusing US drone makers on innovations and flexibility to determine the best components at affordable prices. Hegseth clearly wants to avoid the "gold plating" inherent in much Pentagon procurement, a praiseworthy objective. He also needs to convince those in the present-day supply chain to focus on economy and cost, while assuring that safety and reliability are inherent in products that are accepted for service. Traditionally, the Pentagon gets high marks on safety, fair marks on reliability, and bad marks on pricing. (Obviously when you move up the ladder of sophistication, testing becomes more elaborate and reliability and safety are more difficult to achieve.)

Unlike the US military (all branches), Ukraine has a supervisory organization it stood up in the summer of 2024, called the Unmanned Systems Forces (Сили безпілотних систем, СБС). Ukraine was the first country to create such an organization with responsibility for drone warfare for all military services.

The US Needs to Take Ukrainian and Russian Drone Operations Seriously



Colonel Vadym Sukharevsky.

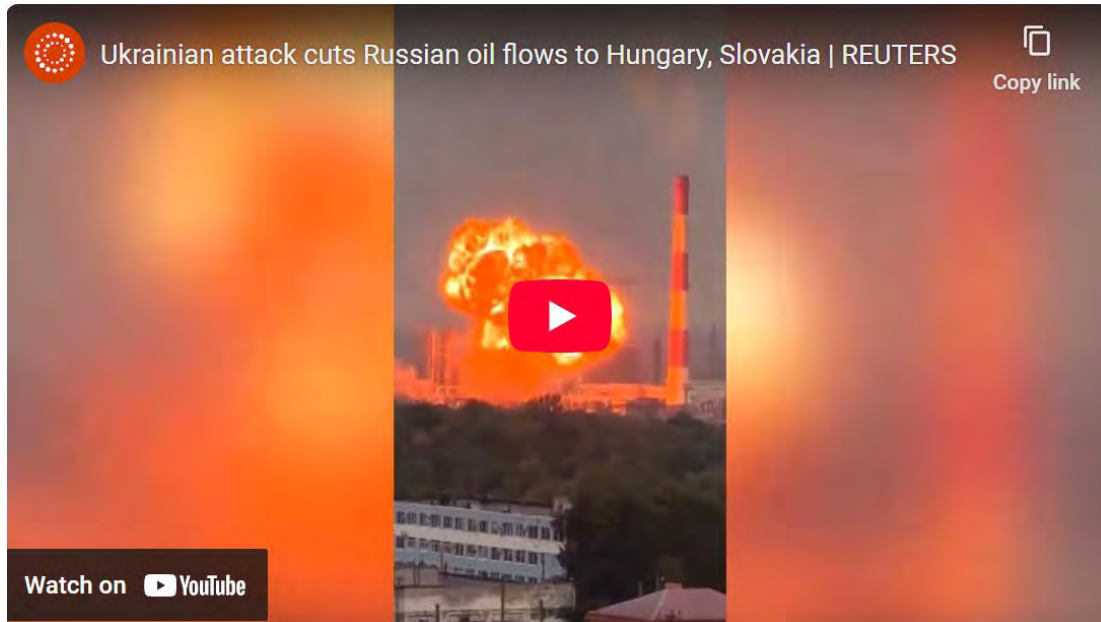
The Ukrainian Unmanned Forces is headed by Colonel Vadym Sukharevsky, who is a deputy commander in chief to Ukraine's Commander in Chief, Oleksandr Syrskyi. Sukharevsky is a highly decorated and experienced combat veteran. Sukharevsky is supported by Colonel Andriy Lebedenko – his focus is on innovation, specifically the technology component of the army and combat systems. This past July General Syrskyi claimed that Ukraine had hit over 24,000 targets with drones. Beyond attacks on the battlefield, Ukraine has stepped up deep-strike operations against Russian assets across the border in Russia.



Andriy Lebedenko

The US Needs to Take Ukrainian and Russian Drone Operations Seriously

What is special about the Ukrainian set up is that drone operations are at the very top of Ukraine's military operations and decisions on their use, along with training, support and logistics are coordinated with overall battle planning and with overall Ukrainian policies, such as deep strikes on Russia or attacking a pipeline system on Russian territory that sends oil to Hungary..



<https://www.youtube.com/watch?v=4XLZtI2XE2M>

The Russian system was set up last July at the direction of Russia's Defense Minister, Andrei Belousov.

It is called the Rubikon Center for Advanced Unmanned Technology. Rubikon supplies specialized detachments to the Russian armed forces. In addition Rubikon trains operators and instructors from other units and works on research and development in cooperation with Russian developers.



<https://www.youtube.com/watch?v=pC4ObPjMla8>

The US Needs to Take Ukrainian and Russian Drone Operations Seriously

Rubikon invites competition across Russia and tests and evaluates new products, supporting testing and demonstrations. It also has command posts in the army and elsewhere (most recently in the Navy) where new products can be tried out. Rubikon is also likely responsible for setting up tracking systems to evaluate drone effectiveness and supports means of feeding back new information on drone performance, counter-drone performance, and enemy tactics and techniques.

Unlike Ukraine, Rubikon seems to operate semi-independently from established command channels. At least for its command units, it arranges supply channels and support for its warfighters. It isn't clear how Rubikon works with regular units in the Army, Air Force and Navy.

The US does not yet have a national warfighting approach for drones. The Marines have put together a small drone and counter drone handbook, and there is much experimentation underway for drone use on the battlefield and testing of counter-drone technology. Training courses are now becoming available for operators. In the US many questions still are lacking answers, such as how drones can be integrated with regular combat operations, how to run drones using radio frequencies that don't conflict with command and control and other weapons, how to defend against enemy drones, and what the best training methods are that can educate up and down the chain from operator to commander and vice versa.

Meanwhile, the manufacturing of "cheap drones" still is unsettled.

It would make sense to emulate the Ukrainian model and put senior drone coordinators and commanders in each service and on the Joint Staff.

Should US forces get into ground fighting in Europe, or in Korea, coordinating the use of drones and countering enemy drones will quickly become a major issue unless greater progress is made in assuring that US forces are prepared and properly supported to deal with drone-defined warfare.

The US also needs to think about drone defense for its allies around the world. At present the US cannot claim it is ready to provide significant support because US forces are not ready now.

While Secretary Hegseth may not like the challenge, he needs to drive the military services and the chiefs to consider drone warfighting as a critical challenge, and make changes in leadership commensurate with modern warfighting conditions.

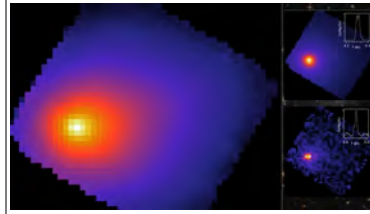
(by Dr. Ken Lui, AIAA Los Angeles Section)



(8/28) The space race is transforming Southern California's economy — again



(8/27) What's next for SpaceX's Starship Mars rocket after Flight 10 success?



(8/26) James Webb Space Telescope takes 1st look at interstellar comet 3I/ATLAS with unexpected result



(8/26) NASA shares photos of an extraordinary event seen by astronauts



(8/23) More than 300 discovered — NASA sends James Webb telescope to study 'little red dots'



(8/23) Pratt & Whitney secures \$2.9 billion contract to supply F135 engines for F-35 Lightning II fighter



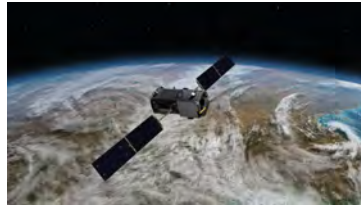
(8/21) Space Force Nears Completion of First Orbital Warship Carrier Designed to Exert Unprecedented Control Over Global Skies From Space



(8/20) NASA chief to defy agency's charter, terminating science



(8/14) Elon Musk has made an announcement: 'Starship flight to Mars crewed by Optimus in Nov/Dec next year'



(8/13) The perfectly fine, already-paid-for satellites Trump wants to destroy in a fiery atmospheric reentry



(8/12) Apex Wants To Bring Henry Ford-Style Mass Production To Satellites



(8/11) Safran Cabin Relocates U.S. HQ to Costa Mesa



(8/9) NASA astronauts splash down off SoCal coast for first time in 50 years



(8/7) Proposed spacecraft could carry up to 2,400 people on a one-way trip to the nearest star system, Alpha Centauri | Live Science



(8/5) NASA Commercial LEO Space Stations Acquisition Strategy



(8/5) Anduril Expands Commitment to Taiwan with New Capabilities, Partnerships and Local Investment



(8/5) Anduril enters U.S. solid rocket motor market, breaking longstanding duopoly (LHX:NYSE)



(8/3) Blue Origin's New Shepard Completes 34th Mission to Space



(8/2) Northrop Grumman successfully demonstrates multi-domain resilient communications with NG InSight



(8/1) 3 big takeaways from the NTSB hearing on the DCA collision