



Navigation Systems Panel Report

Zak Kassas
Chair, Navigation Systems Panel

Submitted to:
Roberto Sabatini
VP, Technical Operations
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The Panel shall address navigation systems for aircraft, spacecraft, ground and marine vehicles and pedestrians as well as history of navigation systems and navigation education.

Objectives

The objectives of this Panel are:

1. Work with the Institute of Navigation (ION) and the PLANS Executive Committee to select and support volunteers for PLANS (e.g., track chairs, session chairs, etc.).
2. Maintain a repository of past conference Budgets, Final Reports, Best Practices and lessons learned.
3. Promote the submission of navigation manuscripts to the IEEE Transactions on Aerospace and Electronic Systems and the AEES Magazine.
4. Facilitate NSP nominations/endorsements for Senior Member and Fellow Grade.
5. Develop, as needed, new conferences related to the NSP's areas of interest.

About the Navigation Systems Panel (NSP)

Position	First Name	Affiliation	Affiliation Type	Region
Chair	Zak Kassas	Ohio State University	Academia	2 (Eastern U.S.)
Vice Chair	Fabio Dovis	Politecnico di Torino	Academia	8 (Africa, Europe, Middle East)
Member	Jason Gross	West Virginia University	Academia	2 (Eastern U.S.)
Member	Pau Closas	Northeastern University	Academia	1 (Northeastern U.S.)
Member	Gary McGraw	PNT Consultant – Collins Aerospace	Industry	4 (Central U.S.)
Member	Randall Curey	Northrop Grumman	Industry	6 (Western U.S.)
Member	Mohammad Tehrani	Innova Photonics	Industry	6 (Western U.S.)
Member	Mike Vaujin	Raytheon	Industry	6 (Western U.S.)
Member	Elena Lohan	Tampere University	Academia	8 (Africa, Europe, Middle East)
Member	Thomas Pany	Universität der Bundeswehr München	Academia/Government	8 (Africa, Europe, Middle East)
Member	Jindřich Dunik	University of West Bohemia/Honeywell	Academia/Industry	8 (Africa, Europe, Middle East)
Member	Omar Crespillo	DLR	Government	8 (Africa, Europe, Middle East)
Member	Andrew Depmster	University of New South Wales	Academia	10 (Asia and Pacific)

Panel Meetings

- Virtual meetings in April 2025, June 2025, August 2025
- In-person meeting in September 2025 at ION GNSS+ Conference, Baltimore, MD and April 2025 at IEEE/ION PLANS, Salt Lake City, Utah

Distinguished Lectures (DL)

- Panel Chair Zak Kassas is scheduled to deliver in December 2025 a virtual AESS DL
- Panel Chair Zak Kassas delivered several in-person DLs on topics related to the panel's scope (navigation systems): Cornell University, University of Rome Tor Vergata, University of Padova, and AESS Tunisia Chapter (virtual)
- Panel Chair Zak Kassas' virtual DL delivered in November 2024 attracted the largest number of attendees among all DLs delivered in 2024

Membership

Membership in the Panel remained the same. The Panel is considering the solicitation of additional members to promote diversity among professional affiliation (specifically industry and government) and geographic diversity (specifically Asia, South America, Africa)

Publications

- The Panel discussed with the AESM EiC to publish highlights from IEEE/ION PLANS 2025 overviewing the conference and highlighting/summarizing award-winning papers at the conference
- The Panel engaged with the TAES EiC to introduce a special section in TAES highlighting selected papers from the upcoming IEEE Navigation Conference

Inter-Panel Activities

Panel Chair Zak Kassas delivered a lecture at the Fifth Glue Technologies for Space Systems Technical Panel Ph.D. Summer School, September 2025, Italian Space Agency, Rome, Italy, titled “A Look at the Stars: LEO PNT with Non-cooperative Satellites”

Conference Activities

- The NSP was heavily engaged with the organization of IEEE/ION PLANS 2025
 - Two of the four Track Chairs are NSP Members: Zak Kassas and Thomas Pany
 - Three of the four Tutorials were delivered by NSP members:
 - Jindrich Dunik: Estimation of Noise Parameters in State Space Models
 - Pau Closas: GNSS in the Age of Machine Learning
 - Zak Kassas: LEO PNT: From Theory to Implementation

Conference Activities

- The NSP worked with NSP-nominated PLANS Program Chair (Christian Gentner, German Aerospace Institute- DLR) on several initiatives for IEEE/ION PLANS 2025
 - Added a Plenary Presentation to the conference and identified the inaugural plenary presenter: Dr. Brad Parkinson, who is considered the “Father of GPS”
 - Helped identify a diverse set of Session Chairs, focusing on quality aspects
 - Introduced new sessions in timely topics, while phasing out older topics
 - Added 4 Invited Sessions in some of the hottest topics in positioning, navigation, and timing (PNT): Cutting-Edge Inertial-Based Pedestrian Localization; Frontiers of GNSS; Frontiers of Radionavigation: Signals of Opportunity, 5G, LEO, and Beyond; Optimization for PNT and Sensor Fusion
- NSP members engaged in the conference organization provided input for an article in the ION Newsletter recapping IEEE/ION PLANS 2025
- NSP Chair worked with ION and the IEEE/ION PLANS organizing committee to ensure a successful conference
- To maintain AESS’ influence on future PLANS, the NSP Chair, Zak Kassas, recommended to ION that IEEE/ION PLANS 2027 be Chaired by NSP Vice Chair, Fabio Dosis. This was approved by the ION Council

Conference Activities

- The NSP took concrete steps towards the organization of a new AESS-sponsored conference: “IEEE Navigation Conference” to take place during IEEE/ION PLANS “off-years,” with the goal to launch the conference in 2026
 - The NSP Charter will be amended to include overseeing the organization of this new conference as a core responsibility of the NSP
 - A committee comprising a subset of the NSP panel was formed to identify various roles pertaining to the organization of this conference: General Chair, Program Chair, Local Chair, Publication Chair, Tutorial Chair, etc.
 - A formal proposal was submitted to the AESS BoG, which was subsequently approved
 - The NSP committee engaged with Conference Catalyst to discuss the organization of the conference
 - The NSP committee met regularly in Fall 2024 and Winter 2025 to pin down many of the conference’s details, including logistics, dates, conference’s scope, format, submission process, tutorials, plenaries, paper awards, and key differentiating identity from other navigation conferences. The objective is to get this conference to be a flagship IEEE AESS conference and the highest-quality PNT conference
 - The NSP finalized a formal proposal to establish the new conference for submission to IEEE

Conference Activities

- Unforeseen conflicts with scheduling IEEE Navigation Conference in 2026
 - Original Plan: March 2026 co-located with Munich Satellite Navigation Summit
 - Munich Satellite Navigation Summit (2.5 days) evolved into The Munich Space Summit (5 days). Co-location with another conference became infeasible.
 - Alternative Plan #1: May 2026
 - NAVITEC, an annual navigation conference organized by ESA in mid-December, got rescheduled to May 2026
 - Alternative Plan #2: July 2026
 - Concerns about decreased attendance due to summer vacation season and to being too close to other conferences, e.g., VTC (June 2026), ICL-GNSS (June 2026), IV (June 2026), ION GNSS+ (September 2026)
 - Alternative Plan #3: October/November 2026
 - ICL-GNSS, an annual navigation conference organized in June, decided to merge with IPIN and got rescheduled to October 2026
- New Plan: Launch the Conference in April 2028. Make announcements early before other conferences announce their dates. The new date is consistent with IEEE/ION PLANS being in April of the odd years.