

About the IEEE Aerospace & Electronic Systems Society Newsletter



Dear AESS Members,

I hope you will enjoy the new contents in this third QEB edition for 2021!

While we cannot meet in person yet, it is incredibly important to maintain connections, to learn about new opportunities, and to be a resource for our peers. This Newsletter is committed to serve as a tool to achieve these goals as it brings us virtually together in the big AESS family.

If you have any questions, comments, concerns, complaints, or constructive suggestions, I'd love to hear them, so please e-mail me.



"No man is an island entire of itself; every man is a piece of the continent, a part of the main; [...] any man's death diminishes me, because I am involved in mankind."

[John Donne]

Happy Reading!

Fabiola Colone
Editor-in-Chief, AESS QEB
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Message from the President



Dear IEEE Aerospace & Electronic Systems Society Members:

With the arrival of the new school year and the Labor Day weekend in the U.S., we mark the end of summer and the approach of autumn in the northern hemisphere. Those of you that live below the equator are finishing winter and nearing spring. I have always enjoyed and anticipated the changes in seasons, even when it means that the weather will be trending from the moderate conditions of spring and fall to the more extreme conditions of summer and winter. Perhaps it is simply my tendency to get tired of the same old routine and desire to experience something different. I suspect that we all share this feeling with respect to the disruptive and monotonous routine that the pandemic has imposed on us and the strong desire to return to something more close to "normal." Unfortunately, we are not there yet, but let us not lose confidence that things will change for the

better. Be strong, stay safe and remain connected and engaged. One opportunity to do so is by participating in the 3rd Quarter virtual distinguished lecture series that kicked off on 7 September and will continue through October. We have a great lineup of speakers with talks that you don't want to miss. Check the AESS website for more information.

Walt Downing
IEEE AESS President
2020-2021

The Story Behind the Success



Francesca Filippini, recipient of the 2020 Robert T. Hill Best Dissertation Award for her work "Multichannel passive radar systems: signal processing techniques and design strategies," talks about her inspiration and mentors.

[Read Here](#)

The History Column

by Hugh Griffiths and Alfonso Farina



Hedy Lamarr (born Hedwig Eva Maria Kiesler, 1914, in Vienna) is best known as a Hollywood actress of the 1940s and 1950s, starring in movies which included *Boom Town* (1940) with Clark Gable and Spencer Tracy, *The Heavenly Body* (1944), and *Samson and Delilah* (1949) opposite Victor Mature.

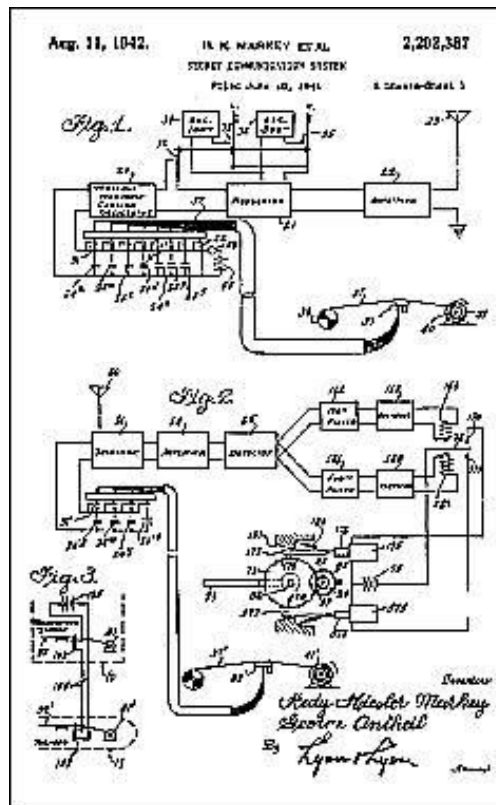


Hedy Lamarr in *The Heavenly Body*, MGM, 1944 (Public Domain).

Her early acting career was in Germany, but in 1938 she moved to Hollywood via London, signed up by Louis B. Mayer of Metro-Goldwyn-Mayer (MGM). She was married (and divorced) six times. She was honoured in 1960 with a star on the Hollywood Walk of Fame for her contribution to the motion picture industry, and she died in January 2000 at the age of 85.

Less well known is the fact that she was also a talented and innovative inventor. In 1942, she and avant-garde musician and inventor George Antheil developed and patented a communications scheme for use in a radio guidance system for torpedoes. The key novelty was that this exploited frequency-hopping both so as not to be discovered by an opponent and as a counter to jamming, and this may be considered as a forerunner of spread-spectrum techniques which are now widely used in secure communications. An important aspect of this was the means used for synchronisation of the hopping codes at the transmitter and receiver, which was achieved in a similar way to that used by Antheil to synchronise two pianos whose tunes were controlled by perforated paper strips. The figure below shows a page from the patent. In the top diagram can be seen seven switched capacitors which determined the seven frequencies of the hopping pattern.

The technique was not exploited directly, but was employed by the US Navy in 1957 as part of the radio link for a sonobuoy. Lamarr and Antheil were posthumously inducted into the US National Inventors Hall of Fame in 2014.



A page of drawings from Lamarr and Antheil's patent (1942).

Acknowledgement:

The authors thank Dr E Detoma and Dr S. Maddio for the useful exchange of additional information on the subject.

Further information may be found at:

Richard Rhodes, *Hedy's Folly: The Life and Breakthrough Inventions of Hedy Lamarr*, Doubleday, New York, 2012.

"A Tale of Two Lives" <https://physicsworld.com/a/a-tale-of-two-lives/>, August 2018.

Alice George, Smithsonian Magazine, April 2019, <https://www.smithsonianmag.com/smithsonian-institution/thank-world-war-ii-era-film-star-your-wi-fi-180971584/>

Bombshell: The Hedy Lamarr Story, feature documentary, 2017 <https://www.youtube.com/watch?v=BKXAkITmGU> (trailer)

IEEE AESS Michael Wicks Fund of the IEEE Foundation

Michael Wicks was a gifted electronic engineer who had a profound impact on all who met and interacted with him. His dedication to the radar community was well known. He gave

freely of his time to serve the IEEE Aerospace & Electronic System Society (AESS) community.

By far his greatest legacy was the profound influence he had on a worldwide generation of radar engineers. His passion for 'giving back' to the AESS and fervor for nurturing the next generation were his motivations when he created the **IEEE Michael C. Wicks Radar Student Travel Grant Award**.

Thanks to Mike's donation to seed the IEEE AESS Michael Wicks Fund of the IEEE Foundation, each year graduate students who are lead authors on a paper in the area of radar signal processing accepted for presentation during the annual IEEE Radar Conference can receive, if selected, travel support to attend the conference and present their research.

Celebrate Mike by joining him in supporting this worthy endeavor and help perpetuate his legacy: <https://www.ieeefoundation.org/wicks>

A tribute page to Mike can be viewed here: <http://ieee-aess.org/michael-c-wicks-memorial>

Call for Nominations

Nominations are open for the 2021 awards cycle! Deadlines and more information [can be found here](#).

Member News

IEEE AESS Early Career Award presented at IEEE DASC 2021

Alessandro Gardi RMIT University, Australia

For outstanding research leadership in Human-Machine Systems for Multi-Domain Traffic Management and Trusted Autonomous Airspace Operations.



Conference Report: ICINS 2021

On 31 May – 2 June 2021, Concern CSRI Elektropribor, JSC held the 28th Saint Petersburg International Conference on Integrated Navigation Systems (ICINS).

[View full report here.](#)

Announcing a new Open Access book on radar from Professor Nadav Levanon

Professor Nadav Levanon, of Tel Aviv University, Israel, presents the radar community with a different kind of radar textbook – an open access electronic book, without a publisher's involvement.

[Learn more here.](#)



**RADAR -
CONCISE COURSE**
Volume 1
Nadav Levanon

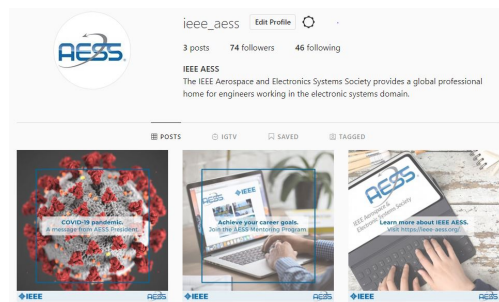
2021 IEEE Senior Members

Senior Membership is the highest grade for which application may be made and shall require experience reflecting professional maturity; a candidate should be an engineer, scientist, educator, technical executive, or originator in IEEE-designated fields in professional practice for at least ten years and shall have shown significant performance over a period of at least five of those years.

For more information, go to the IEEE Senior membership section of the [IEEE website](#).

Visit our [website](#) to view the complete list of our Senior Members.

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- Open the PDF and print it

Publication News

Transactions on AES Editor-in-Chief Michael Rice on the 2017 M. Barry Carlton Award Winners

"It is my great pleasure to announce the winner for 2017 Bo Li and Athina Petropulu for their article

"Joint transmit designs for coexistence of MIMO wireless communications and sparse sensing radars in clutter." This article appeared in the December 2017 issue of TAES." [Read the full column here.](#)

Upcoming Special Sections in the IEEE Transactions on Aerospace and Electronic Systems

[Special Section on Information and Communication Technologies \(ICT\) for a New Space Vision](#) - Submissions open 1 October 2021 - 29 October 2021

[Special Section on Industrial Information Integration in Space Applications](#) - Submissions open 23 November 2021 - 31 December 2021

COVID-19 Related Research and Technologies Free to Access in IEEE Xplore®

IEEE realizes that many are directly or indirectly engaged in the fight against COVID-19 and its effects on global health and safety, research, infrastructure, communications, and more. IEEE has identified articles from the IEEE Xplore digital library that may help researchers understand and manage different aspects of the COVID-19 pandemic and technologies that can be leveraged to combat it.

All content in this collection is now free to access, with additional rights for all types of reuse, including full text and data mining, and analysis.

We are continually monitoring the developments and will update IEEE Xplore content periodically.

Thank you for your support of our shared mission to advance technology for humanity.

AESS Technical Panels

AESS Technical Operations

A memo concerning AESS Awards was recently sent to all members. Please consider nominating deserving individuals and groups. In addition, this is the time of year to consider elevation to Senior Member level or nomination for Fellow.

All six of the technical panels have continued with their conferences, publications, standards developments, and educational activities, such as participating in the web-based Distinguished Lectures. More than 100 AESS volunteers are participating in these activities. Read the most recent Panel Posts following this introduction. Please support your panels and consider joining one. Just contact the Panel Chair (listed below)!

George Schmidt
Panel Coordinator

Panel Chair Statements



Avionics Systems Panel

Roberto Sabatini, Chair 2021

The Avionics Systems Panel (ASP) addresses technology research, innovation, education, and standards for avionics systems for all manned and unmanned commercial, military, and general aviation operations. The avionics system functions include communications; command and control; navigation; surveillance; traffic management; and space systems (launch vehicles, spacecraft and satellites). This is a transformational realm for avionics systems design and development due to the introduction of artificial intelligence and machine learning into avionics for autonomous aircraft. The ASP can provide opportunities for members to collaborate across industry, government and academia as well as participate in the management and organization of the two leading avionics conferences that are jointly sponsored by IEEE and the American Institute of Aeronautics and Astronautics (AIAA). We welcome individuals who want to be the future shapers of the aviation and space sectors. Individuals interested in participating should contact the chair at roberto.sabatini@mit.edu.au.



Cyber Security Panel

Kathleen Kramer, Chair

The AESS Cyber Security panel promotes and supports cyber security technical activities in those aspects of cyber security relevant to complex systems for space, air, ocean, or ground environments, particularly those that apply to aviation and aerospace.

Are you active in cyber security and interested in participating on this panel? Are you interested in organizing or attending a local meeting in the summer virtual series? Please contact the panel chair, Prof. Kathleen Kramer



Glue Technologies for Space Systems Panel

Claudio Sacchi, Chair

Our panel intends to promote the activities of AESS in the interdisciplinary field of “Glue Technologies.” The panel aims at bringing in the community a renewed systemic vision of telecommunications encompassing various and heterogeneous space technologies in a unified framework targeting the evolution to future “Space 2.0” vision.

You are encouraged to join the panel, writing an email to myself (claudio.sacchi@unitn.it), to the panel vice-chair Michael Noble (noble@ieee.org) and, in c.c., to the panel secretary Riccardo Bassoli (riccardo.bassoli@tu-dresden.de). The affiliation to IEEE (and to AESS) is welcome, but not required to join.



Gyro and Accelerometer Panel

Randall Curey, Chair

The Gyro and Accelerometer Panel (GAP) is a long standing group of dedicated individuals whose contributions to the inertial sensors and systems body of standards benefit the inertial community at large. The GAP has existed for almost 60 years and has two standing committees; one for systems and one for sensors. The GAP develops and maintains a growing body of inertial sensor and system standards; 14 published standards and one in development. The GAP provides the opportunity for the inertial community to develop long term relationships and networking capabilities across academia, developers, users and customers. Participation in the GAP discussions provides a learning opportunity to hear diverse perspectives on how specifications are developed, which allows early-career professionals insight into the physics, the mathematics and the application. The GAP enables fellow professionals to engage with others in the inertial field for education, awareness and camaraderie. To that end, a number of unsponsored retirees continue to participate in the GAP activities. Individuals interested in participating should contact the chair at randall.curey@ieee.org.

Navigation Systems Panel

Michael Braasch, Chair



The purpose of the Panel is to sustain and oversee the programs of the IEEE/ION Position, Location and Navigation Symposium (PLANS); promote and support publications in the domain of Navigation; and to encourage the submission of nominations for IEEE Fellows and Senior Members in the domain of Navigation. The Panel is composed of a variety of representatives of industry, government laboratories, educational institutions and professional societies who are active in the domain of Navigation.

The panel works with the U.S. Institute of Navigation (ION) and the PLANS Executive Committee to select and support volunteers for PLANS including track chairs, session chairs and the like. The panel promotes the submission of navigation manuscripts to the *IEEE Transactions on Aerospace and Electronic Systems* and the *AESS Systems Magazine*.

Those working in the navigation area and interested in supporting the panel's activities are encouraged to contact the panel chair: Dr. Michael Braasch: braaschm@ohio.edu.



Radar Systems Panel

Nathan Goodman, Chair 2021

The IEEE Radar Systems Panel (RSP) serves this Technical Community by overseeing the world's flagship conferences in the field, serving as editorial staff for radar's home in the *IEEE Transactions on Aerospace & Electronic Systems Journal*, educating the radar workforce, and managing radar standards. With continued advances driven by the digital revolution, radar is truly experiencing a renaissance that is opening new vistas in myriad civil applications, increasingly sophisticated defense

applications, and addressing the growing congestion of spectrum. Indeed, the explosion of low-cost, software-driven technologies is ushering in a "home-grown" era of radar research that will ultimately lead to a previously unseen degree of innovation and crowdsourcing. Consequently, it is more important than ever that the RSP engages with a diverse population of the radar community, and individuals interested in serving should reach out to current members to learn how they can participate.

[View Panel Posts Here](#)

Education News

AESS Distinguished Lecturer Program

All AESS Chapters and IEEE Sections are encouraged to take advantage of the AESS Distinguished Lecturer and Tutorial Program for their regular or special meetings, which allows them to select from an outstanding list of truly distinguished speakers who are experts in the technical fields of the Society. For more information, [please see the AESS website](#).

Distinguished Lecturer Reports



The Fall 2021 IEEE AESS Virtual Distinguished Lecturer Webinar Series takes place over the months of September and October. Webinars are 60-minutes long, including 15 minutes for Q&A. We are thrilled to offer you the opportunity to attend these webinars, and we encourage your participation!

[More Information and Recordings of the Virtual DLs](#)

Conference News

The screenshot shows the IEEE Aerospace & Electronic Systems Society website. At the top left is the AESS logo, and at the top right is the IEEE logo. A navigation bar contains links for About AESS, Conferences, Education, Awards, Member Services, Publications, Tech Ops, and Industry Relations. Below this is a section titled 'AESS Conferences' Paper Deadlines' with a 'Home' link and an update date of 'May 21, 2021'. A table lists two conferences: ICINS 2021 and ICL-GNSS 2021, with columns for Abstract Submission, Final Paper Submission, Conference Date, Conference Location, and Web Link.

CONFERENCE	ABSTRACT SUBMISSION	FINAL PAPER SUBMISSION	CONFERENCE DATE	CONFERENCE LOCATION	WEB LINK
ICINS 2021	(passed)	(passed)	May 31 - June 2, 2021	Saint Petersburg, Russia AND VIRTUAL	http://www.elektropribor.spb.ru/en/conferences/141
ICL-GNSS 2021	(passed)	(passed)	June 1-3, 2021	VIRTUAL	https://events.tuni.fi/icl-gnss2021

Follow the link below to find up-to-date information on the deadlines for all upcoming AESS conferences.

[Conference Paper Deadline Tracker](#)

Call for Proposals for the 2024 IEEE Radar Conference

The Radar Systems Panel (RSP) of the IEEE Aerospace & Electronic Systems Society welcomes proposals from prospective organizers to host the 2024 IEEE Radar Conference. This conference series, originally initiated in 1984 as the US National Radar Conference, has grown to have an internationally diverse attendance and a reputation for the highest quality. *The formal notice of intent is requested by 1 Nov 2021 and the written proposal by 15 Dec 2021.* More information here.

[More Information Here](#)

Conferences and Workshops

The information below is current as of 06 October 2021. Please refer to the link below or to each conference website for the most up-to-date information.

[Visit Website](#)

2021 IEEE Digital Avionics Systems Conference

HYBRID | 3-7 October 2021

[2021 IEEE DASC](#)



2021 International Conference on Information Fusion



HYBRID | 1-4 November 2021

We are proceeding with the full intention of hosting an on-site conference, as we foresee that vaccinated individuals should be able to travel by November. There will thus be a local component, on-site at the Sun City Conference Centre in Rustenburg, South Africa. We will make virtual attendance possible but would like to limit it to cases where on-site attendance is not possible owing to specific COVID restrictions. The virtual option will only be available in the South Africa time zone, and remote presentations will be live or pre-recorded.

[2021 FUSION](#)

2022 IEEE Aerospace Conference



Big Sky, Montana, USA | 5-12 March 2022

2022 IEEE AeroConf

2022 IEEE Radar Conference



New York City, New York | 21-25 March 2022

2022 IEEE RadarConf



National Harbor, MD, USA | 29 August - 1 September 2022

2022 IEEE AUTOTESTCON

Technically Co-Sponsored Conference Listing:

IEEE International Carnahan Conference on Security Technology (ICCST 2021)

VIRTUAL | 11-15 October 2021

[Visit Conference Website](#)

IEEE Conference on Microwaves, Communications, Antennas, and Electronic Systems (IEEE COMCAS 2021)

[Visit Conference Website](#)

IEEE Radio and Wireless Symposium (RWS 2022)

Las Vegas, Nevada, USA | 16-19 January 2022

[Visit Conference Website](#)

NAVITEC (NAVITEC 2022)

Noordwijk, The Netherlands | 4-8 April 2022

[Visit Conference Website](#)

29th Saint Petersburg International Conference on Integrated Navigation Systems (ICINS 2022)

Saint Petersburg, Russia | 20 May - 1 June 2022

[Visit Conference Website](#)

9th International SpaceWire and SpaceFibre Conference (ISC 2022)

Pisa, Italy | TBD

[Visit Conference Website](#)

Have a conference you'd like advertised in the AESS Quarterly Email Blast? Contact [Judy Scharmann](#) for details on how to have it included.

[View Full List of AESS Conferences](#)

Publications

IEEE Aerospace and Electronic Systems Magazine

The *IEEE Aerospace and Electronic Systems Magazine* is a monthly magazine that publishes articles concerned with the various aspects of systems for space, air, ocean, or ground environments as well as news and information of interest to IEEE Aerospace and Electronic Systems Society members. Our goal is to inform the readers of technologies, state of the art, design trades, etc. so that they will gain insights into a field heretofore unknown to them. We want to introduce technical specialties to readers in the hope that something in

Latest Issues

[December 2020](#)

[November 2020](#)

[October 2020](#)

[September 2020](#)

[August 2020](#)

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the articles will give them some insight for their own fields of endeavor.

IEEE Transactions on Aerospace and Electronic Systems

IEEE Transactions on Aerospace and Electronic Systems (T-AES) focuses on the organization, design, development, integration, and operation of complex systems for space, air, ocean, or ground environment. These systems include, but are not limited to, navigation, avionics, spacecraft, aerospace power, radar, sonar, telemetry, defense, transportation, automated testing, and command and control.

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AESS YP & Student Representatives

AESS Suggestions Welcome

We welcome suggestions from members on how the AESS can improve.

[Fabiola Colone](#), VP Member Services

[Judy Scharmann](#), AESS Executive Assistant

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