

Technical Operations Report Board of Governors Meeting September 25 & 26, 2015

Technical Panel Updates

(See AESS Website for Details)

- **Aerospace Control and Guidance**
- **Aerospace Systems Integration Engineering**
- **Avionics Systems**
- **Cyber Security**
- **Gyro and Accelerometer**
- **Radar Systems**
- **Space Systems**
- **Target Tracking Systems – reorganizing**
- **Unmanned Aircraft Systems**

Aerospace Control and Guidance

- Last meeting March 3-6, 2015 in Portland, OR
 - Held 1-day short course on Model-based Design
- Next meeting October 13-16 in Charlotte, NC
 - Will include competition for young professional lecture award
- Following meeting March 15-18, 2016 in Napa, CA
 - Short course planned on topic TBD
- 2014 AESS Best Technical Panel Award



Dr. James Forbes accepts the 2014 AESS Best Technical Panel Award at the Henry Ford Museum on June 29th during the Automatic Control Workshop on Time Delay Systems

Aerospace Systems Integration Engineering

- Panel webex meeting on September 2, 2015
- Meeting planned for Systems Symposium this week
- Organizing subcommittees
 - Electric Aircraft
 - Intelligent Transportation Systems
 - Others?
- Building core of volunteers (Published call in QEB and Collabratec)
- Goals and Objectives
 - Host a future conference on systems integration engineering for all modes of transportation possibly in collaboration with other organizations
 - Identify opportunities for development of open standards
 - Conduct webinars and tutorials on technical fields of interest
 - Investigate possible STEM activities with Systems Council

ASIEP Outreach Examples

AESS E-mail Blast Q2 2015

Call for participation in the Aerospace Systems Integration Engineering Panel:

Aerospace Systems Integration Engineering Panel (ASIEP) under IEEE Aerospace & Electronics Systems Society (AESS) is a Technical Panel focused on technical operations related to identifying and implementing strategies pertaining to the large scale and/or aerospace systems. We support the advancement of systems integration engineering techniques and promote solutions to specific Systems Engineering (SE) Topics. Within ASIEP there are various working groups like Electric Aircraft, Intelligent Transport Systems, Air Traffic Management, Small Satellite Technologies, Unmanned Aerial Vehicles, Workforce development and Open Standards Development. Visit our [Web site](#) to find the details of the Panel's work groups and its objectives.

Interested experts willing to participate in these working groups, please contact the [Panel Chair](#) or [Panel Vice-Chair](#).

IEEE Collabratec™
PILOT

22 Jul 2015



IEEE Collabratec™: Koteswararao Tatipamula Invites You to Join Aerospace Systems Integration Engineering Panel -ASIEP Research Group

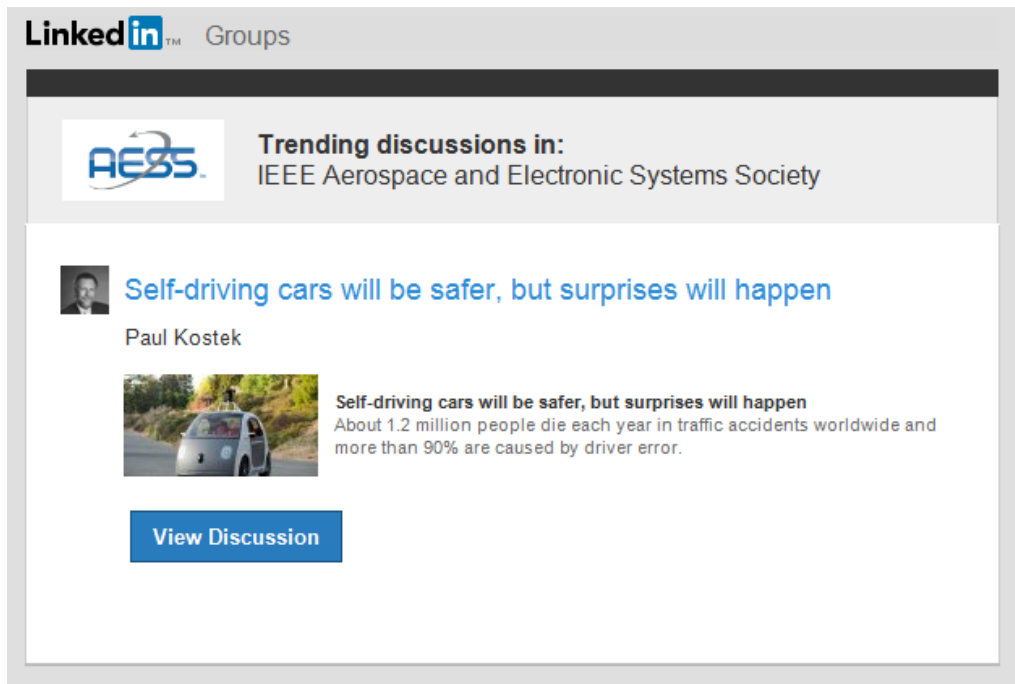


Please participate in my Aerospace Systems Integration Engineering Panel -ASIEP Research Group on IEEE Collabratec™, a new online research and collaborative authoring tool.

If you do not have an IEEE Collabratec account, [join today](#).


Avionics Systems


AESS on Social Media



LinkedIn Groups

AESS Trending discussions in:
IEEE Aerospace and Electronic Systems Society

 **Self-driving cars will be safer, but surprises will happen**
Paul Kostek

 **Self-driving cars will be safer, but surprises will happen**
About 1.2 million people die each year in traffic accidents worldwide and more than 90% are caused by driver error.

[View Discussion](#)

- Recent Activities
 - Panel meeting at 2015 DASC in Prague
 - Special issue on avionics in September 2015 issue of SYSTEMS
- Focus for 2016
 - Identify authors for SYSTEMS magazine articles
 - Organize sessions for ICNS and DASC
 - Exploring joint activities with other technical panels
 - Additional support for PLANS

Cyber Security

- Focus for 2015: Clarify mission and reinvigorate panel
- Panel conducted a technical track at DASC focused on cyber security for aircraft and avionics
- Panel meeting planned for ICCST, but postponed due to lack of ability to participate at conference site (Taiwan)
- AESS fields of interest related to Cyber Security
 - Cyber Security for transportation systems
 - Cyber Security for aircraft and avionics
 - GPS Threats
 - Information security for complex systems
 - Identification and modeling of cyber-related vulnerabilities
- IEEE Cyber Security Initiative
 - Pre-council IEEE body
 - Multiple societies engaged

Gyro and Accelerometer

- Last meeting September 14-15, 2015 in Amityville, NY
- Future meeting November 5-6, 2015 in Alamogordo, NM
- Primary Focus: Develop and maintain standards for sensors and systems that detect or measure linear or angular motion
- Two Committees
 - Sensors
 - Systems
- Recent Accomplishments
 - Revision of IEEE STD 1293 nearing completion
 - Progress on IEEE STD 1780
 - Corrigenda for IEEE STD 952

Radar Systems

- Very active with 40 members (elections in July 2015)
- Upcoming meeting at 2015 IEEE RadarConf in Johannesburg
- Approved proposal for 2018 RadarConf in Berlin
- Special issues of SYSTEMS magazine
 - Waveform Diversity
 - Passive Radars for Civilian Applications
- Accepting nominations for awards
 - Warren White Award (deadline February 15, 2016)
 - Nathanson Award (deadline January 31, 2016)
- Revise IEEE STD 686: Standard Radar Definitions
- Revise IEEE STD 521: Standard Letter Designation for Radar Frequency Bands

Space

- Serving as editor of Space Systems for Transactions
- Educational activities in space systems
 - University of Roma Tor Vergata
- Preparing new editions of master courses
 - Advanced Satellite Communications Systems
 - Satellite Communications and Navigation Systems
- Organizing Track 2 for 2016 Aerospace Conference
 - Space Missions, Systems and Architectures
- Organizing MetroAerospace Conference with IEEE I&M Society to be held in Florence, Italy on 22-23 June 2016
- Coordination and Organization of scientific activities (both propagation and communication experiments) on Q/V band channel of TDP#5 (Technology Demonstration Payload)
- Development of papers and technical articles
- Expansion of panel activities into other countries

Unmanned Aircraft Systems

- Worked with AESS Chapters to promote UAS activities and provide topic speakers (50% show interest in UAS)
- 2015 UAS presentations
 - NJIT, 12 March, 40 attendees
 - OKC, 30 March, 41 attendees
 - Wichita, KS, 20 attendees
 - Bonn, Germany, 22 September
- Outreach
 - UAS industry leaders
 - FAA Test Site Universities
 - AESS Student Branches
- Interactions with AUVSI
 - AUVSI engaged at 2016 DASC in Sacramento, CA
 - Student competitions

Technical Operations Strategic Plan

- **Mission Statement**

AES Technical Operations will form technical panels in the Society's fields of interest to stimulate technological advances and member engagement in technical networking, standards development, publications, conferences, chapter meetings, and other professional development activities.

- **Vision Statement**

Organize and conduct the world's best technical activities in the Society's fields of interest.

Technical Operations Strategic Objectives

Strategic Objective 1

Develop and implement a technical panel review process

- Develop matrices identifying alignment of technical panels with AES conferences, distinguished lecturers, IEEE standards, etc.
- Perform gap analysis on these matrices to identify opportunities to increase alignment
- Review and evaluate technical panels (Blue/Green/Yellow/Red) on alignment metrics
- Share these metrics with technical panels and work to continually improve scores

Technical Panel Metrics

Technical Panels	Aerospace Control & Guidance Systems	Aerospace Systems Integration Engineering	Avionics Systems	Cyber Security	Gyro and Accelerometer	Radar Systems	Space Systems	Target Tracking Systems	Unmanned Aerospace Vehicles
Chair	Phil Hattis	Roger Oliva	Paul Kostek	Kathleen Kramer	Randall Curey	Maria Greco	Cosimo Stallo	Dale Blair	Ron Ogan
Vice Chair or Co-Chair	James Forbes	Koti Tatipamula			Reese Sturdevant		Marina Ruggieri	John Glass	Phillip Hall
Number of Members						30-45			
Number of Committees	Ad Hoc	"4-7"	5	None Currently	2	7	3 "Areas"	4	Ad Hoc
IEEE Standards					Sensors - 292, 293, 517, 528, 529, 647, 671, 813, 836, 952, Systems - 1559, & 1780	Terminology - 521 & 686 Ultrawideband Radar - 1672			
Meetings per Year	Semi-annual	2+	2+	2+	6 meetings/yr.	4+	2+	2+	2+
Conference Participation			DASC, ICNS & PLANS?	DASC & ICCST		Multiple Nathanson & White	Aerospace & RAST		
Responsibility for AES Awards							Resnik		
Distinguished Lecturer Coverage	4	12	2	?	1	10	3	11	1+

Technical Operations Strategic Objectives

Strategic Objective 2

Expand technical panel participation in all AES sponsored conferences

- Utilize gap analysis to identify conferences that lack AES member participation
- Identify cognizant technical panel for each conference and encourage increased participation
- Encourage all technical panels to participate in at least one AES conference per year

Status

- Acquired conference attendance lists from Conference Catalysts for past AUTOTESTCON, ISIS, and PLANS
- Compared with list of AESS members, found matches and shared with conference organizers
- Need to obtain similar information for other AES sponsored conferences.

AES Financially Sponsored Conferences Alignment with Technical Panels

	Financial Cosponsors	Next Conference	Last Held	AESS Attendees	AESS Technical Panel
AES Financially Sponsored/Cosponsored Conferences					
IEEE Radar Conference	IEEE GRS Society	October 27-30, 2015 Johannesburg, South			Radar Systems
IEEE AUTOTESTCON	IEEE IM Society	November 2-5, 2015 National Harbor, MD	September 15-18, 2014 St. Louis, MO	35	Board of Directors
IEEE Aerospace Conference		March 5-12, 2016 Big Sky, MT	March 7-14, 2015 Big Sky, MT		Space Systems
Position Location and Navigation Symposium (PLANS)	ION	April 11-14, 2016 Savannah, GA	May 5-8, 2014 Monterey, CA	19	Avionics Systems
IEEE International Radar Conference (RadarCon)		May 1-6, 2016 Philadelphia, PA	May 11-15, 2015 Crystal City, VA		Radar Systems
IEEE/AIAA Digital Avionics Systems Conference (DASC)	AIAA DATC	September 25-30, 2016 Sacramento, CA	September 13-18, 2015 Prague, Czech Republic		Avionics Systems
Integrated Communication, Navigation, and Surveillance Conference (ICNS)	AIAA DATC	April 16-17, 2017 Herndon, VA	April 21-23, 2015 Herndon, VA		Avionics Systems

Technical Operations Strategic Objectives

Strategic Objective 3

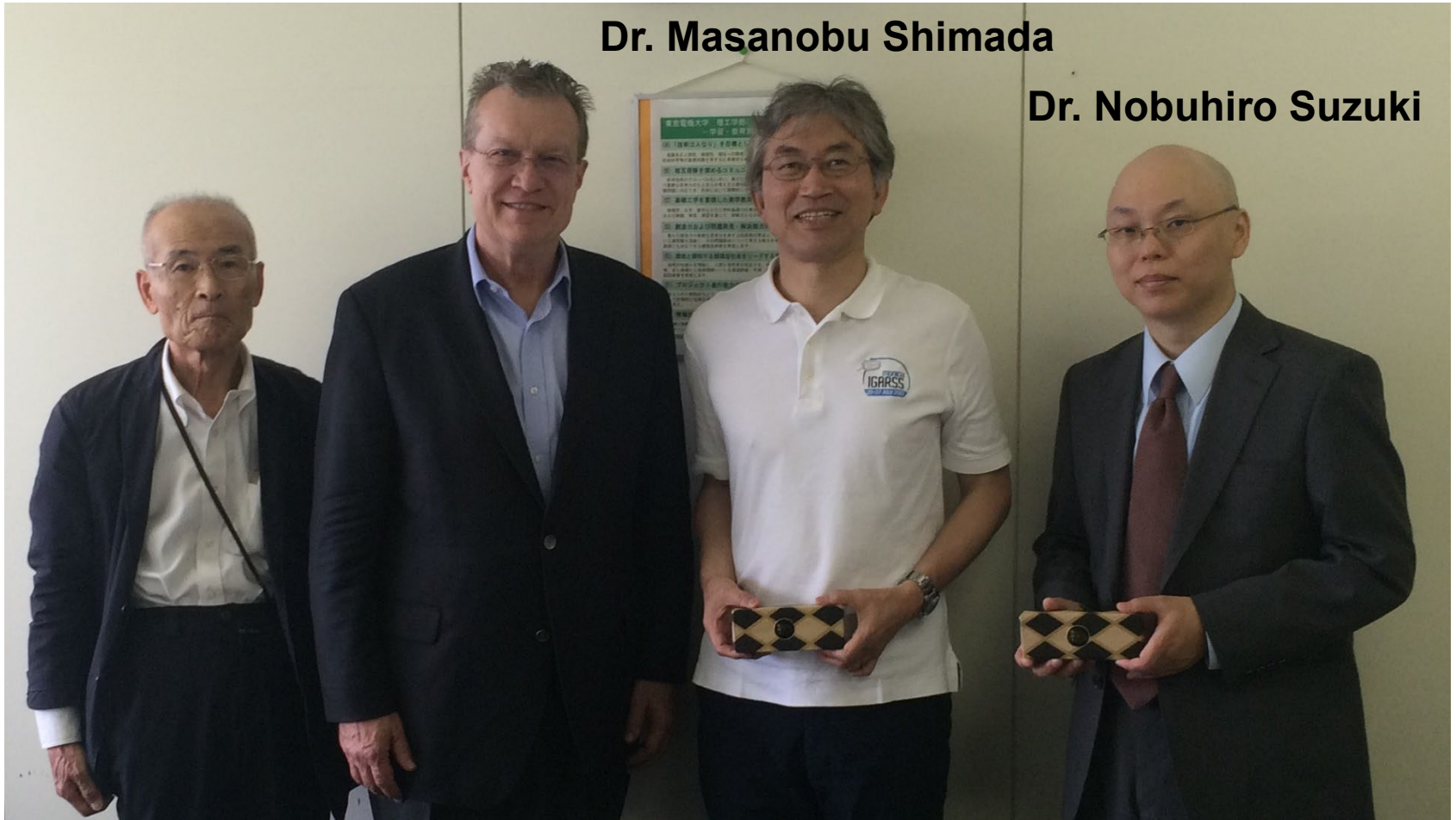
Promote collaboration between technical panels and chapters

- Identify technical panel members and their local IEEE sections
- Develop matrix of technical panel membership vs. IEEE sections for regional coverage
- Analyze matrix to identify regions that have critical mass and ensure that there are local AES chapters in these regions to promote further collaboration
- Survey local AES chapters to identify which AES fields of interest, if any, are predominant among their members
- Use this information to inform and encourage member participation in relevant technical panels

Status

- Request for Central Texas Section Joint Chapter of SMC (existing) and AES (new) has been approved by the Section Leadership and AES
- Visited AES Japan Council Chapter on May 29, 2015
- Visited AES Beijing Chapter on August 7, 2015
- Prepared visit summaries for AES website and QEB

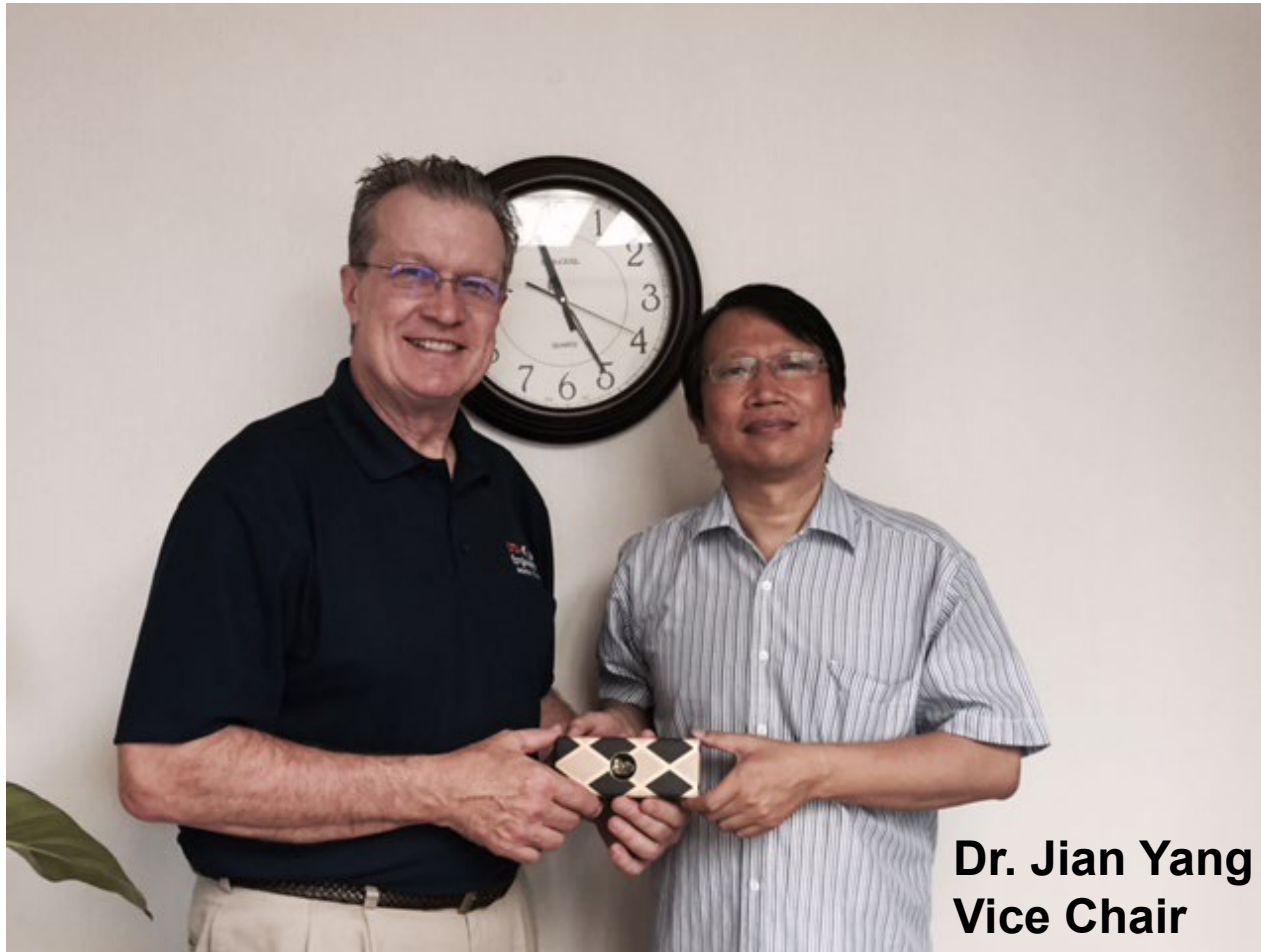
Japan Council Chapter Leadership Visit



Dr. Masanobu Shimada

Dr. Nobuhiro Suzuki

Beijing Chapter Leadership Visit



Dr. Jian Yang
Vice Chair

Technical Operations Strategic Objectives

Strategic Objective 4

Promote synergy and collaboration with AES Educational Activities to expand distinguished lecturer coverage and develop continuing professional development activities for all AES fields of interest

- Utilize gap analysis to identify needs for distinguished lecturers in specific fields of interest
- Utilize AES chapter fields of interest and local experts to identify new distinguished lecturer candidates
- Explore concept of short courses proposed by educational activities to increase collaboration

Status

- Prepared conceptual alignment matrix for DL vs. technical panel interests
- Identified potential gaps in DL coverage of AES fields of interest
- No further progress since May 2015

Distinguished Lecturers Topics Alignment with Technical Panels

	Aerospace Control & Guidance Systems	Aerospace Systems Integration Engineering	Avionics Systems	Cyber Security	Gyro and Accelerometer	Radar Systems	Space Systems	Target Tracking Systems	Unmanned Aerospace Vehicles
Yaakov Bar-Shalom		X						X	
Erik Blasch	X	X						X	
Eli Brookner						X		X	
Larry Chasteen		X	X			X			
Fred Daum		X				X		X	
Mark Davis						X		X	
Saj Durrani		X					X		
Giuseppe Fabrizio		X				X		X	
Alfonso Farina						X		X	
Avid Roman Gonzalez							X		
Maria Sabrina Greco						X		X	
Hugh Griffiths						X		X	
Simon Haykin		X				X		X	
Wolfgang Koch	X	X				X		X	
Surendra Pal	X	X					X		
Tony Ponsford		X							
Bob Rassa		X							
George Schmidt	X	X	X		X				X

Technical Operations Strategic Objectives

Strategic Objective 5

Prepare technical panel guidance in the form of best practices, techniques, and tools

- Collect charters, strategic plans, and other relevant documents for each technical panel
- Identify best practices, techniques and tools used by most successful technical panels
- Prepare a technical panel handbook of these best practices, techniques and tools
- Share technical panel handbook with all technical panels
- Revise and update as necessary

Status

- Aerospace Control and Guidance Systems selected for 2014 Outstanding Technical Panel Award
- Award presented at the banquet of the IFAC Workshop for Time Delay Systems at the Henry Ford Museum in Dearborn, MI on June 29, 2015

Technical Operations Strategic Objectives

Strategic Objective 6

Increase AESS member participation in all technical panels

- Utilize gap analysis to identify AES activities needing additional member involvement
- Utilize AES chapter fields of interest and local experts to identify and engage emerging leaders
- Inform and invite AES members to participate in AES activities through improved communication efforts including letters, email, AES website, QEB and social media

Status

- Updating AES website with current information
- Preparing articles for 2015 QEB
- Increasing participation in social media activities
- Completed ABET Program Evaluator Training and certified as a qualified IEEE Program Evaluator
- Planning to contact local IEEE-HKN chapters to discuss opportunities to increase student involvement in AESS

2015 QEB Q2 – Technical Panels Article

AESS

Technical Panels

What are [Technical Panels](#) and why should you care?

Technical Panels are groups of professionals from government, industry, and academia who enjoy joining together to share their knowledge and experience and to work on a variety of collaborative activities in an AESS field of interest. These activities include development and periodic revision of IEEE standards pertaining to the relevant technical domain; organizing and leading the premier IEEE technical conferences in the field of interest; nominating candidates from among their peers to be recognized for their professional achievements with IEEE awards or elevation to IEEE Fellow; encouraging the publication of technical papers in IEEE journals or magazines; and supporting technical presentations to promote continuing education and professional development. If you want to get the best value from your AESS membership, then you should get involved in these types of activities in your field of interest.

Currently AESS has nine Technical Panels:

1. [Gyro and Accelerometer](#)
2. [Radar Systems](#)
3. [Space Systems](#)
4. [Target Tracking Systems](#)
5. [Aerospace Systems Integration Engineering](#)
6. [Aerospace Control & Guidance Systems](#)
7. [Cyber Security](#)
8. [Unmanned Aerospace Vehicles](#)
9. [Avionics Systems](#)

Schedule for 2015 QEB Articles Featuring Technical Panels

QEB Q1

- Cyber Security ✓
- Space Systems ✓

QEB Q3

- Gyro and Accelerometer
- Aerospace Control and Guidance Systems

QEB Q2

- Radar Systems
- Target Tracking Systems
- ASIEP ✓

QEB Q4

- Avionics Systems
- Unmanned Aerospace Systems

Technical Operations Financial Assessment

- (1) CY 2015 Budget for Technical Operations - \$10K
- (2) No Current Initiatives
- (3) Strategic Analysis Will Reveal Opportunities for New Initiatives

IEEE Systems Council

- 1st IEEE International Symposium on Systems Engineering
 - Workshop on systems engineering education planned
 - September 28th, 5-8 pm (Workforce Development Committee)
- Fall AdCom meeting on October 1, 2015 after ISSE
- 10th Annual IEEE International Systems Conference (SysCon)
 - Call for Papers Deadline October 15, 2015
 - Conference Dates: April 18-21, 2016
 - Hyatt Regency Grand Cypress, Orlando, FL
- IEEE Cloud Computing Initiative (CCI)
 - Volunteer Opportunities
 - IEEE Education offering new, free module on Cloud Computing
 - Need editor for publications tab on CCI website