Fifth International Conference on Electronic Warfare - EWCI 2018
NSSC, Indian Institute of Science, Bangalore, India (13 to 16 February 2018)
PROGRAMME SUMMARY

13 Feb 2018, Tuesday	**Pre-Conference Tutorials**		**Venue : Seminar Hall A**
08:30 to 09:00Hrs	**Registration for the Tutorials**		
09:00 to 09:30 Hrs	**Inauguration of the Pre Conference Tutorials, By The Chief Guest**		
09:30 to 11:00 Hrs	**Tutorial 1: Airborne SIGINT Operation**, By Dr. Andrea De Martino and Mr Alessio Campana, Elettronica S.p.A.-Italy		
11:00 to 11:30Hrs	**Tea Break**		
11:30 to 13:00 Hrs	**Tutorial 2: EW Applications vs DRONE/UAV/RPV Proliferation**, BY Mr José Miguel Pascual Ruiz, Mr David Lazaro Loscos, INDRA, Spain		
13:00 to 14:00 Hrs	**Lunch Break**		
14:00 to 15:30 Hrs	**Tutorial 3: Cross - Eye Jamming - Problems and Potential**, Dr. Warren du Plessis ,University of Pretoria, South Africa		
15:30 to 16:00 Hrs	**Tea Break**		
16:00 to 17:30 Hrs	**Tutorial 4: Cost Effective, High Performance Networked ELINT Systems for C4ISR Missions**, Mr Hafedh Trigui, Ultra Electronics TCS, Canada		
14 Feb 2018, Wednesday	**Day 1 : Inaugural, Plenary and Technical Sessions**		
08:00 to 08:45 Hrs	**Registration for the Conference at the Event's Venue**		
09:00 to 10:45Hrs	**Inaugural Function at J N Tata Auditorium:** Introductory Address, Inauguration of the Conference , Release of Souvenir, Keynote Address, Patron Address, Theme Talk and Addresses by Conference Chair, Technical Committee Chair and Chief Guest		
10:45 to 11:15Hrs	Inauguration and Visit of Technical Exhibition by Dignitaries		
10:45 to 11:15Hrs	**Hi Tea**		
11:15 to 12:00 Hrs	**Time to Visit Technical Exhibition**		
12:00 to 13:00Hrs	**Plenary Session - I at J N Tata Auditorium:** **Current Trends in EW Technology,** By Lisa K Fruge - Cirilli, President, AOC International, USA **Challenges in Development of Next Generation EW Systems,** By Dr AK Singh, OS and Director, DLRL, DRDO, Hyderabad, India		
13:00 to 13:45Hrs	**Lunch Break**		
13:45 to 14:30 Hrs	**Time to Visit Technical Exhibition**		
14:30 to 15:30 Hrs	**Plenary Session - II at J N Tata Auditorium:** **Current Technology EW Systems - Development to Production in Indian Scenario,** By Dr A T Kalghatgi, Director R & D, BEL, Bangalore **Modern Trends in Airborne EW / EO Systems - An Indian Overview**, By Dr K Maheswara Reddy, OS and Director, DARE, DRDO, Bangalore		
15:30 to 16:00 Hrs	**Invited Talk 1 at J N Tata Auditorium**	: **Trends in International Development of Electromagnetic Spectrum Operations** By Dr Sue Robertson, AOC International Region 1 Director	
16:00 to 16:30 Hrs	**Tea Break**		
16:30 to 17:30 Hrs	**Session 1 at JN Tata Auditorium**	: EW SYSTEMS AND DF TECHNIQUES– I	(3 Papers)
	Session 2 at Seminar Hall A	: ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – I	(3 Papers)
	Session 3 at Seminar Hall B	: EW RECEIVERS AND RF SUB SYSTEMS – I	(3 Papers)
19:00 Hrs	**Cultural Programme followed by Conference Dinner**	**Venue : Convention Hall, R G Royal Hotel, Bangalore**	
15 Feb 2018, Thursday	**Day 2 : Invited Talks and Technical Sessions**		
09:00 to 09:30Hrs	**Invited Talk 2 at J N Tata Auditorium**	: **EW Training with Software-Defined Radio (SDR),** By Prof. Warren du Plessis, South Africa	
09:30 to 10:00Hrs	**Invited Talk 3 at J N Tata Auditorium**	: **Hostile Drone Protection Systems and EW UAV Application/Equipment** By José Miguel Pascual Ruiz and David Lazaro Loscos, INDRA, Spain	
10:00 to 11:00 Hrs	**Session 4 at JN Tata Auditorium**	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - I	(3 Papers)
	Session 5 at Seminar Hall A	: EW SYSTEMS AND DF TECHNIQUES– II	(3 Papers)
	Session 6 at Seminar Hall B	: EW THREAT SIMULATORS AND EW TESTING / EVALUATION – I	(3 Papers)
11:00 to 11:30 Hrs	**Tea Break**		
11:30 to 12:50 Hrs	**Session 7 at JN Tata Auditorium**	: EW SOFTWARE ENGINEERING AND MODELING – I	(4 Papers)
	Session 8 at Seminar Hall A	: NETWORK CENTRIC AND INFORMATION WARFARE	(4 Papers)
	Session 9 at Seminar Hall B	: EW SYSTEMS AND DF TECHNIQUES –III	(4 Papers)
12:50 to 13:30 Hrs	**Lunch Break**		
13:30 to 14:00 Hrs	**Time to Visit Technical Exhibition**		
14:00 to 14:30 Hrs	**Invited Talk 4 at J N Tata Auditorium**	: **Ideas and Approaches on the Past and the Future of SWaP SIGINT Receiver Architectures** By Volker Brands and Mark Reinhard, Narda Safety Test Solutions GmbH, Germany	
14:30 to 15:00 Hrs	**Invited Talk 5 at J N Tata Auditorium**	: **ELINT/ESM Systems for Unmanned Air Vehicles** By Hafed Trigui and Robby Miles, Ultra Electronics TCS, Canada	
15:00 to 16:00Hrs	**Session 10 at JN Tata Auditorium**	: ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – II	(3 Papers)
	Session 11 at Seminar Hall A	: EW THREAT SIMULATORS AND EW TESTING / EVALUATION – II	(3 Papers)
	Session 12 at Seminar Hall B	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – II	(3 Papers)
16:00 to 16:30 Hrs	**Tea Break**		
16:30 to 18:10 Hrs	**Session 13 at JN Tata Auditorium**	: COMMUNICATION EW - I	(5 Papers)
	Session 14 at Seminar Hall A	: EW RECEIVERS AND RF SUB SYSTEMS – II	(5 papers)
	Session 15 at Seminar Hall B	: EW SOFTWARE ENGINEERING AND MODELING – II	(5 Papers)
16 Feb 2018, Friday	**Day 3 : Invited Talks, Technical Sessions and Conclusion Session**		
09:00 to 09:30 Hrs	**Invited Talk 6 at J N Tata Auditorium**	: **Counter-Drone Solutions : The Multi-Domain, Multi-Spectral Approach** Alessio Campana , Sr. Eng. Sci. Office, Electronica S.p.A., Italy	
09:30 to 10:30Hrs	**Session 16 at JN Tata Auditorium**	: EW SYSTEMS AND DF TECHNIQUES – IV	(3 Papers)
	Session 17 at Seminar Hall A	: ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – III	(3 Papers)
	Session 18 at Seminar Hall B	: COMMUNICATION EW - II	(3 Papers)
10:30 to 11: 00Hrs	**Tea Break**		
11:00 to 12:20 Hrs	**Session 19 at JN Tata Auditorium**	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – III	(4 Papers)
	Session 20at Seminar Hall A	: EW SYSTEMS AND DF TECHNIQUES– V	(4 Papers)
	Session 21 at Seminar Hall B	: EW RECEIVERS AND RF SUB SYSTEMS – III	(4 Papers)
12:20 to 13:15Hrs	**Concluding Session at J N Tata Auditorium**	: Distribution of Certificates, Discussions on Feedback, Vote of Thanks	
13:15 to 14:00 Hrs	**Lunch Break**		
14:00 to 16:30 Hrs	**Final Opportunity to Visit Stalls and Interact with Exhibitors and End of the Conference**		

EWCI 2018 : PRE-CONFERENCE TUTORIALS on Tuesday, 13 FEBRUARY 2018 (Forenoon)
Inauguration : By The Chief Guest Lisa K Fruge - Cirilli, President, AOC International, USA
Venue: Seminar Hall A, Duration: 09:00 to 09:30 Hrs

Tutorial 1 : 09:30 to 11:00 Hrs

Airborne SIGINT Operation
By Dr Andrea De Martino and Mr Alessio Campana, Elettronica, Italy

The Speaker Dr Andrea De Martino graduated in Nuclear Engineering (Electronic Track) and Ph.D. in Automatic Control Systems. He worked in Selenia S.p.A From 1972 to 1985 where he was involved in design of variety of Radar Systems. Since 1985 he worked in Elettronica where he developed New EW Products, Microwave to EFA-DASS. He currently holds position of CTO in Elettronica, Italy. Dr De Martino is a patent holder and author of the book "Introduction to Modern EW Systems" and many Technical Papers on Radar and EW.

The Co-Speaker Mr Alessio Campana served as combat pilot in the Italian Air Force from 1994 to 2000 and while in service, obtained the Master Degree in Telecommunication Engineering at Roma Tor Vergata University in 2002. As Engineer in Telecommunication, he covered multiple technical and managerial roles in GSM/UMTS Networks, LTE Radio Networks and Senior Technical Trainer. In 2010, he joined Elettronica, Italy, as Senior Engineer, as Research and Development System Project Manager for Electronic Warfare Solutions. Currently, he is in the Corporate Chief Scientist Office as Senior Expert for CONOPS and Operational Scenarios, with an additional role of Technical Proposal Manager for Capability Marketing and Business Development activities.

Coverage: Signals Intelligence (SIGINT) is a fundamental capability of the Electronic Warfare (EW), determining the Electronic Order of Battle (EOB), which encompasses the localisation and the identification of the Radars and Comms Nodes associated to the Weapon Systems and the Networks displaced in the adversary territory. SIGINT equipment are installed on board large aircraft, provided with powerful Signal and Data Processors, feed Monitors, large capacity Data Recorders, supervised by a number of skilled Signal Corps operators, for delivery of the mission-recorded data to the further SIGINT Ground Base analyses.

Modern Communications and Electronic Signals equipment are adopting a number of Electronic Protection Measures (EPM) to their Signal Generation Techniques (such as Spread Spectrum, SDR, LPI, Cognitive Waveforms etc.) in order to prevent (or at least strongly reduce) their detection and classification from the SIGINT Aircraft, operating remotely. This new situation has to be tackled by adding to the mission a number of specialised (either ELINT or COMINT) drones which are addressed by the SIGINT A/C towards the presumed zones provided with the above equipment in order to provide better detection, recording and Change Detection information of their signal transmissions. The Tutorial deals with the technical requirements of the Aircraft and drones SIGINT signal processing (SP) and equipment and shows some relevant solutions provided by Elettronica S.p.A., Roma.

Tea Break : 11:00 to 11:30 Hrs

Tutorial 2 : 11:30 to 13:00 Hrs

Electronic Warfare Applications Vs DRONE/UAV/RPV Proliferation - Protection against Hostile RPV, EW Evolution and RPV Uses
By Mr Jose Miguel Pascual Ruiz and Mr David Lazaro Loscos
INDRA, Spain

The Speaker Mr José Miguel Pascual Ruiz is a Telecommunication Engineer and has lead technological innovations at INDRA in SIGINT/ELINT, DRFM and Digital Reception Technology presently deployed on INDRA EW products. Mr. Pascual has been involved on most of Spanish Intelligence and EW Tactical programs.
Mr. Pascual has authored many Technical Papers. Presently he is Technology and Product Development Deputy Director at INDRA, Spain.

The Co-Speaker, Mr David Lázaro Loscos is a Computer Science Engineer and has lead multiple Digital Reception innovative developments for INDRA EW products. He has worked as System Engineer in multiple international projects based on RWR / ELINT / ESM INDRA products based on digital reception technology, also participated in international study groups on LPI radar detection and digital reception technology. He is Area Director at INDRA, in charge of the definition and development for new EW Sensors.

Coverage: UAV/RPV proliferation has resulted in an increased EW threat requiring protection and also as the platform capable to expand EW applications to improve the projection of EW assets. In urban environment, for irregular/asymmetric confrontation or terrorism protection, the use of EW EA has an advantage avoiding the risk of collateral damages, applying a proportionated response. General requirements of such a protection system will be presented, combining sensors as Radar, EO/IR cameras, and EW equipment working in combination, to defeat this threat. Military UAV or small UAVs on open range or urban environment need this multi-sensor detection combination to avoid false alarm and high probability of detection at long ranges even against very low radar cross section flying objects with different approaching profiles.
Contribution of EW Electronic Attack assets on this confrontation is achieved by special EA/Jamming modes, spoofing/deception, tracking/identification, supplantation, that can be also included as part of the inventory of Ground/Land base EA stations. Implementation of multifunctional ESM/ELINT equipment, lighter and modular scalable architectures compatible for UAV, POD or platform integrated EW equipment, result in efficient overall approach. This technology is combined with interoperability, cooperative uses. Compact EW Digital Receiver based ELINT/ESM equipment architecture suitable for lighter equipment and higher integration is also reviewed together with main component, building block evolution.

Lunch Break : 13:00 to 14:00 Hrs

EWCI 2018 : PRE-CONFERENCE TUTORIALS
on Tuesday, 13 February 2018 (Afternoon)

Tutorial 3 : 14:00 to 15:30 Hrs

Cross-eye Jamming – Problems and Potential
By Dr. Warren du Plessis , University of Pretoria, South Africa

The Speaker Dr Warren du Plessis received the B.Eng. (Electronic), M.Eng. (Electronic) and Ph.D. (Engineering) degrees from the University of Pretoria in 1998, 2003 and 2010 respectively, winning numerous academic awards including the prestigious Vice Chancellor and Principal's Medal. He has been working in EW and radar since 2006and is currently Associate Professor at the University of Pretoria. Prof. du Plessis is a Senior Member of the IEEE and a Lifetime Member of the AOC. He is author of 46 journal and conference papers. While best known for his work on cross-eye jamming, Prof. du Plessis has also published in a number of other fields related to EW including thinned antenna arrays, communications intelligence (COMINT), and the role of EW and its relationships to other similar fields.

Coverage: The concepts underlying cross-eye jamming were patented in the late 1950s, but it was only in 2000 that the first cross-eye jammers suitable for operational use were publicly disclosed. This tutorial will describe cross-eye jamming in terms of both the traditional phase-front analysis and more modern analyses. From this introduction, the unique attributes which have led to the long-term interest in cross-eye jamming will be highlighted. Comparisons to other jamming techniques with similar capabilities will be made to emphasise the unique benefits achievable by cross-eye jamming. The significant challenges associated with implementing practical cross-eye jammers will be analysed to provide an indication of their magnitudes, and possible solutions to these challenges will be described and evaluated.

The tutorial will include descriptions of measurements which have been performed, by a laboratory simulation to confirm that cross-eye jamming actually works and to prove that the modern analyses of cross-eye jamming are correct. A proof-of-concept system, which was implemented and successfully tested against a monopulse radar, will also be described and evaluated.

Tea Break : 15:30 to 16:00Hrs

Tutorial 4 : 16:00 to 17:30 Hrs

Cost Effective, High Performance Networked ELINT Systems for C4ISR Missions
By Mr Hafedh Trigui, Ultra Electronics TCS, Canada

The Speaker Mr Hafedh Trigui has received a Bachelor degree of Electrical Engineering from the National Engineering School of Sfax (Tunisia), a Master degree in Information Treatment and Processing from the University de Nice Sophia Antipolis (France) and a Ph.D in Electronics and Communications from the Ecole Nationale Superieure de Telecommunications (Paris, France) in 1994, 1995 and 1999 respectively. He has been involved in modem, antenna and wireless communications network design activities at Telecom Modus, Arraycomm, TenXc Wireless, Cartiza Networks and Reverb Networks. In 2010, he joined the Electronic Warfare department of Ultra Electronics TCS where he is involved in a number of Systems, R&D and Products Management activities.

Coverage: Border and coastal surveillance is a high priority for each country to counter a large number of threats to its economy and sovereignty. Collected information from various sensors is securely transmitted through radio networks to a command and control station where it is processed and used to build and maintain a common situation awareness picture of the operational environment. The network is known as command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR). Using exemplary ELINT missions, we show in the tutorial that the requirements for the Army, the Air Force and the Navy are similar and therefore it will be possible to bring these organisations together through a common C4ISR network that can be overlaid to legacy networks and evolve with time to replace them. ELINT and radio technologies and systems that make the C4ISR network cost effective and achieve high performance are discussed. Establishing a common C4ISR network for the three organisations enables tight collaboration between them resulting in efficient strike capabilities and the creation of cross domains expertise much needed in the battlefield.

17:30 Hrs : End of EWCI 2018 Pre-Conference Tutorials

Inaugural Function

14 February 2018 | **Venue: J N Tata Auditorium** | **Duration: 09:00 to 11:15Hrs**

09:00 to 09:10 Hrs	Invocation and Lighting of the Lamp	
09:10 to 09:20 Hrs	Introductory Address	By Conference Chair **Dr U K Revankar** President, AOC India Chapter, Bangalore, India
09:20 to 09:30 Hrs	Inauguration of Conference and Release of Souvenir	By The Chief Guest **Dr S Christopher** Chairman DRDO and Secretary, Department of Defence R & D Ministry of Defence, Govt. of India
09:30 to 09:40 Hrs	About the Conference	By Chair, Conference Technical Committee **J Shanker Rao**, Former Scientist H, DLRL, DRDO
09:40 to 09:45	Address	By Conference Co-Chair **Dr A T Kalghatgi**, Director (R&D), BEL, Bangalore
09:45 to 10:00 Hrs	Dignitary Address	By **M V Gowtama** Chairman & Managing Director, BEL, Bangalore
10:00 to 10:15 Hrs	Key Note Address	By **Lisa K Fruge - Cirilli** President, AOC International, USA
10:15 to 10:20 Hrs	Address	By Conference Coordinator **H V Harish**, CEO, Spur India, Bangalore
10:20 to 10:40 Hrs	Inaugural Address	By The Chief Guest
10:40 to 10:45 Hrs	Vote of Thanks	By Conference Co-Chair **T N Yadgiri Rao**, Vice President, AOC India Chapter
10:45 to 11:15 Hrs	Inauguration and Visit of Technical Exhibition	By The Chief Guest and Dignitaries
10:45 to 11:15 Hrs : Hi Tea		
11:15 to 12:00 Hrs : Time to Visit Technical Exhibition		

14 February 2018 | **Day 1 : PLENARY SESSION I** | **J N Tata Auditorium**

Chair : I V Sarma, Former Director (R&D) , Bharat Electronics Ltd., Bangalore, India
Co-Chair : Mahesh V, Executive Director (EW&A) , Bharat Electronics Ltd., Bangalore, India
Duration: 12:00 to 13:00 Hrs

Plenary Talk 1	**Current Trends in EW Technology** By Lisa K Fruge - Cirilli, President AOC International, USA	12:00 to 12:30 Hrs
Plenary Talk 2	**Challenges in Development of Next Generation EW Systems** By Dr AK Singh, OS and Director DLRL, DRDO, Hyderabad, India	12:30 to 13:00 Hrs

13:00 to 13:45 Hrs : Lunch Break

13:45 to 14:30 Hrs : Time to Visit Technical Exhibition

14 February 2018 | **Day 1 : PLENARY SESSION II and Invited Talk 1** | **J N Tata Auditorium**

Chair : Dr U K Revankar, Former Director DARE, DRDO & President, AOC India Chapter, Bangalore, India
Co-Chair : H V Harish, CEO, Spur India Limited & Secretary, AOC India Chapter, Bangalore, India
Duration : 14:00 to 16:00 Hrs

Plenary Talk 3	**Current Technology EW Systems – Development to Production in Indian Scenario** Dr A T Kalghatgi, Director R & D Bharat Electronics Ltd., Bangalore, India	14:00 to 14:30 Hrs
Plenary Talk 4	**Modern Trends in Airborne EW / EO Systems – An Indian Overview** Dr K Maheshwara Reddy, OS and Director DARE, DRDO, Bangalore, India	14:30 to 15:30Hrs
Invited Talk 1	**Trends in International Development of Electromagnetic Spectrum Operations** By Dr Sue Robertson, AOC International Region 1 Director	**15:30 to 16:00 Hrs**
16:00 to 16:30 Hrs : Tea Break		

14 February 2018	Day 1 : TECHNICAL SESSION 1		J N Tata Auditorium
Chairman: **Dr A T Kalghatgi** Director (R&D), BEL **Co Chairman:** **R V Haraprasad** Sc 'G', DLRL, DRDO **Duration:** 16:30 to 17:30 Hrs	**EW SYSTEMS AND DF TECHNIQUES - I**		
	040R008	**Hostile Drone Protection System** J.M.Pascual, J.P.Gómez, F. Barbero, F. Vázquez , D. Lázaro INDRA, Spain	16:30 to 16:50 Hrs
	063R011	**Advances in EW Technologies and Systems** Lt Cdr Deepak Lavaniya Indian Navy	16:50 to 17:10 Hrs
	039R009	**Electronic Warfare Systems vs DRONE_UAV_RPV Proliferation** D.Lázaro, F.Vázquez, J.M.Pascual, M.Solano, J.A.Gismero, B.Vizoso INDRA, Spain	17:10 to 17:30 Hrs
End of the Day 1	**Cultural Programme and Conference Dinner at 19:00 Hrs**		**Venue: Convention Centre, R G Royal Hotel, Bangalore**

14 February 2018	Day 1 : TECHNICAL SESSION 2		Seminar Hall A
Chairman: **Dr A K Singh** OS & Director DLRL, Hyderabad **Co Chairman:** **D D Sarma** Sc 'C', DLRL, DRDO **Duration:** 16:30 to 17:30 Hrs	**ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – I**		
	057R048	**Novel GaN Based Solid State Power Amplifiers From Leonardo For EW Applications, Results, Advances And Comparison With Vacuum Tubes based Microwave Power Modules** Marco Li Vecchi, Francesco Di Maggio, Antonino Spatola, Leonardo Spa Airborne and Space System Division, via Villagrazia 79, Palermo, Italy	16:30 to 16:50 Hrs
	069R072	**Current Technology Trends in High Power MPMs** By Jacob Thampan and Steve Walley, dB Control Inc, USA	16:50 to 17:10 Hrs
	001R004	**Injection of Malicious Programs by Tactical Jammers into Target Combat Systems** Commander TRS Kumar, Staff Officer (Communication & EW), HQWNC, Indian Navy	17:10 to 17:30 Hrs
End of the Day 1	**Cultural Programme and Conference Dinner at 19:00 Hrs**		**Venue: Convention Centre, R G Royal Hotel, Bangalore**

14 February 2018	Day 1 : TECHNICAL SESSION 3		Seminar Hall B
Chairman: **Lisa K. Frugé-Cirilli** President AOC International USA **Co Chairman:** **Dr R Pragasam** Sc 'G', DLRL, DRDO **Duration:** 16:30 to 17:30 Hrs	**EW RECEIVERS AND RF SUB SYSTEMS – I**		
	043R058	**Challenges in the Design of ELINT Receiver for High Altitude Platforms** S Lalitha, Sc-E, T Abhilash, Sc-D, Defence Electronics Research Laboratory, DRDO, Hyderabad	16:30 to 16:50 Hrs
	025R021	**RF Chain and ADC Interface in Radar warning (digital) receiver** Girish M, Sc 'D', Vengadesh Kumar, Sc 'E' Parvin Kumar Sc 'D', Lokesha BN, Sc'F' Defence Avionics Research Establishment , DRDO, Bangalore	16:50 to 17:10 Hrs
	042R061	**Compact RF Proximity Fuse in C-Band : A Design Approach** Dr.R.Pragasam, T.Abhilash, C.Vasanth Kumar and N.Leelamadhuri Defence Electronics Research Laboratory, DRDO, Hyderabad	17:10 to 17:30 Hrs
End of the Day 1	**Cultural Programme and Conference Dinner at 19:00 Hrs**		**Venue: Convention Centre, R G Royal Hotel, Bangalore**

15 February 2018	Day 2 : TECHNICAL SESSIONS 4, 7, 10 & 13 and Invited Talk 2 & 3	J N Tata Auditorium	
Invited Talk 2	**EW Training with Software-Defined Radio (SDR)** Prof. Warren du Plessis, University of Pretoria, South Africa		09:00 to 09:30 Hrs
Invited Talk 3	**Hostile Drone Protection Systems and EW UAV Application/Equipment** Mr J.M. Pascual Ruiz and D.Lazaro, INDRA, Spain		09:30 to 10:00 Hrs
Session 4 **Chairman:** **Dr Sue Robertson,** AOC International Region 1 Director **Co Chairman:** **Dr Arun Kumar Singh** Sc 'F', DLRL, DRDO **Duration:** 10:00 to 11:00 Hrs	**EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - I**		
	033R007	**Recent Advances in Low latency Data Conversion for E.W. Applications** A. Glascott-Jones, N. Chantier, F. Bore, M. Wingender, G. Wagner, M. Stackler & R. Pilard Teledyne - e2V, UK	10:00 to 10:20 Hrs
	024R022	**SNR considerations for detection of 100 nS pulse in a digital receiver** Girish M, Sc 'D', Lokesha BN, Sc 'F', Vengadesh Kumar, Sc 'E', Parvin Kumar Sc `D` Defence Avionics Research Establishment (DARE), DRDO, Bangalore	10:20 to 10:40 Hrs
	007R024	**A method of resolving and routing name based connections for multi-processor communication** Anitha.K.M, Madhukesh U.H, Kathirvel. R Bharat Electronics Limited, Bangalore	10:40 to 11:00 Hrs
11:00 to 11:30 Hrs : Tea Break			
Session 7 **Chairman:** **Dr Warren du Plessis,** University of Pretoria, South Africa **Co Chairman:** **K Murali,** Sc 'G',DLRL,DRDO, **Duration:** 11:30 to 12:50 Hrs	**EW SOFTWARE ENGINEERING AND MODELING – I**		
	R015	**Automatic Label De-cluttering for real-time Situation Monitor Display** Rajesh M A, Sc 'E', Rakesh K P, Sc 'C', Shibumon Alampatta, Sc 'D' Centre for Artificial Intelligence and Robotics, DRDO, Bangalore	11:30 to 11:50 Hrs
	066R030	**Big Data Analytics for Military Operations** CP Amulya Sc-E, S.K.Gupta, Sc-E, Ravi Tudu, Sc-D, CS Krishna Kumar Sc-F Defence Electronics Research Laboratory, DRDO, Hyderabad	11:50 to 12:10 Hrs
	011R042	**Radar Target Classification for Electronic Warfare** Divya N , V Thilagavathi Central Research Laboratory, Bharat Electronics Limited, Bangalore	12:10 to 12:30 Hrs
	R034	**Parameters Modeling of Digital Pre-distortion for Wide Band Power Amplifier** Lalit Kumar Sc `C`, Kumar Gautam Sc `F`, Ch. Arun Kumar Sc `E` , Defence Electronics Research Laboratory, DRDO, Hyderabad	12:30 to 12:50 Hrs
12:50 to 13:30 Hrs: Lunch Break			
13:30 to 14:00 Hrs: Time to Visit Technical Exhibition			
Invited Talk 4	**Ideas and Approaches on the Past and the Future of SWaP SIGINT Receiver Architectures** Volker Brands and Mark Reinhard, L3 Technologies, Narda Safety Test Solutions GmbH, Germany		14:00 to 14:30 Hrs
Invited Talk 5	**ELINT/ESM Systems for Unmanned Air Vehicles** Hafed Trigui and Robby Miles, Ultra Electronics TCS, Canada		14:30 to 15:00 Hrs
Session 10 **Chairman:** **Dr Sudhir Kamat** Director, MTRDC,DRDO **Co Chairman:** **Y Gopal Krishna** Sc G, DLRL.DRDO, **Duration:** 15:00 to 16:00 Hrs	**ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – II**		
	005R005	**Realization & Performance Evaluation of High Gain Fast Switching 100W L - Band SSPA** Pankaj Gupta , Sudip Kumar Murmu, Ambethkar.K , Prakash S.P & Kalyani Murthy Bharat Electronics Limited, Bangalore	15:00 to 15:20 Hrs
	004R013	**Reliability Analysis of Ku Band Microwave Power Module Power Supply for Airborne Application** Khilawan Choudhary, P. Sidharthan Microwave Tube Research & Development Centre, DRDO, Bangalore	15:20 to 16:40 Hrs
	008R012	**Design & Development of 500W, 225-1000MHz Solid State Power Amplifier for Jammer** Chandrashekar K, Nagaveni H, Devendra M.C, Prakash S.P, Kalyani Murthy , Bharat Electronics Limited, Bangalore	15:40 to 16:00 Hrs
16:00 to 16:30 Hrs : Tea Break			
Session 13 **Chairman:** **Phillip Jacob** Former ED (Central D&E), BEL **Co Chairman:** **Mahesh V** ED (EW &A), BEL **Duration:** 16:30 to 18:10 Hrs	**COMMUNICATION EW – I**		
	049R028	**Implementation of Hardware Efficient Programmable Wideband Demodulators in Communication ESM Receivers** K. Bhaskar Kumar, Sc 'C, V.Srinivas, Sc 'E, Omkar Kothekar, Sc 'D' and Kumar Gautam, Sc 'F' Defence Electronics Research Laboratory, DRDO, Hyderabad	16:30 to 16:50 Hrs
	061R033	**On Vocoder Identification using novel Parameters in Case of Protocol Inaccessibility** Parthraj Tripathi, Jitendra Mohan Chaubey, Kommuri Anitha and Anupam Sharma Defence Electronics Research Laboratory, DRDO, Hyderabad	16:50 to 17:10 Hrs
	006R003	**Tactical Tethered Aerostat With COMINT Payload as Elevated Platform** Brigadier N Keshavan Unni, VSM (Retired), Pune	17:10 to 17:30 Hrs
	046R074	**Analysis of Unknown threat signals on the fly – A Step towards Cognitive Electronic Warfare** Naincy Jain, BSTC, Bharat Electronics, Bangalore	17:30 to 17:50 Hrs
	056R077	**Ontology Based Approach for Data Integration in Electronic Warfare Systems** Bhavani Anireddy and Subrat Kumar Sahoo Defence Electronics Research Laboratory, DRDO, Hyderabad	17:50 to 18:10 Hrs
End of Day 2 for J N Tata Auditorium			

15 February 2018	Day 2 : TECHNICAL SESSIONS 5, 8, 11, 14		Seminar Hall A
Session 5 **Chairman:** **Gareth Morris** Saab Technologies Germany **Co Chairman:** **Lokesha B N** Sc 'F', DARE, DRDO **Duration:** 10:00 to 11:00 Hrs	**EW SYSTEMS AND DF TECHNIQUES– II**		
	022R018	**Undetected ISR/SIGINT Capabilities: new requirements and unconventional systems on midget underwater platforms** Alessio Campana Elettronica S.p.A., Rome-Italy	10:00 to 10:20 Hrs
	026R019	**Next Generation Fighter EW** Mr. Fredrik Bergdahl Saab Technologies, GmbH, Germany	10:20 to 10:40 Hrs
	031R026	**Cognitive Electronic Warfare (EW) Systems as a Training Aid** Prof. Warren du Plessis and Nicholas Osner University of Pretoria, South Africa	10:40 to 11:00 Hrs
11:00 to 11:30 Hrs : Tea Break			
Session 8 **Chairman:** **C V S Sastry** Sc 'H' & OSD to DG DRDO **Co Chairman:** **Anupama Sharma** Sc 'G' , DLRL, DRDO **Duration:** 11:30 to 12:50 Hrs	**NETWORK CENTRIC AND INFORMATION WARFARE**		
	023R016	**Maritime Operations : Risk Management Strategy Using Network Centric Operations** Dr Narayan Panigrahi, Sc-'G', Commander V Ramraj Center for Artificial Intelligence & Robotics, DRDO, Bangalore	11:30 to 11:50 Hrs
	009R017	**Information Warfare – Origin, Concepts And Emphasis In Present Era** Cdr (Dr) Rishi Pamnani Indian Navy	11:50 to 12:10 Hrs
	015R059	**Tactical Communication Middleware for Network Centric Warfare Driven Battlefield** Subha P Eswaran , M. Bharathi Central Research Laboratory, Bharat Electronics Limited, Bangalore	12:10 to 12:30 Hrs
	072R079	**Implementation of Software Communication Architecture (SCA) in EW System Design** Anantha Padmanabha, P Jayapal and Dr NNSSRK Prasad Centre for Military Airworthiness & Certification, DRDO, Bangalore and Aeronautical Development Agency, Bangalore	12:30 to 12:50 Hrs
12:50 to 13:30 Hrs : Lunch Break			
13:30 to 14:00 Hrs : Time to Visit Technical Exhibition			
Session 11 **Chairman:** **T N Yadgiri Rao** Former Associate Director, DLRL, DRDO **Co Chairman:** **Ms R Anand** Sc 'G' , DLRL, DRDO **Duration:** 15:00 to 16:00 Hrs	**EW THREAT SIMULATORS AND EW TESTING / EVALUATION – II**		
	021R045	**Thermal Design of COTS based Electronic Equipment** Prashant and Karthikeyan A Bharat Electronics Limited, Bangalore	15:00 to 15:20 Hrs
	017R050	**Design and Development of Mobile Wideband Radar Simulator** M. Sreenivasa Rao Defence Avionics Research Establishment, DRDO, Bangalore	15:20 to 16:40 Hrs
	012R051	**Development of Electronic Counter Measure Simulator for Jammer STIR Applications** A.R. Sachin, Sc 'E' , M. Girish, Sc 'D' , Defence Avionics Research Establishment, DRDO, Bangalore	15:40 to 16:00 Hrs
16:00 to 16:30 Hrs : Tea Break			
Session 14 **Chairman:** **Mattias Hjorth** Saab AB, Stockholm Sweden **Co Chairman:** **Ms V Revathi** Sc 'G', DLRL, DRDO **Duration:** 16:30 to 18:10 Hrs	**EW RECEIVERS AND RF SUB SYSTEMS – II**		
	018R060	**Design of LO distribution Network in X band** Rahul Sadhu, A S Sowmya Reddy & Nagaveni H Bharat Electronics Limited, Bangalore	16:30 to 16:50 Hrs
	003R010	**A 3-dB Multi-Octave Bandwidth Wilkinson Power Divider** Meenakshi Durga, Saurabh Shukla Defence Avionics Research Establishment, DRDO, Bangalore	16:50 to 17:10 Hrs
	045R054	**Design of Hybrid Dual Band filter for on board navigation systems** Debapriya Sen, M. Ramesh, Central Research Laboratory, Bharat Electronics Limited, Bangalore	17:10 to 17:30 Hrs
	016R001	**LNA approaches for on-board receiver and its implementation for strategic & EW applications** Kamaljeet Singh, A V Nirmal ISRO Satellite Centre, Old Airport Road, Bangalore	17:30 to 17:50 Hrs
	019R044	**A Wideband Antenna for Short Range Portable Guard Radar** Nikhil Gupta and Leena Maundekar Central Research Laboratory, Bharat Electronics Limited, Bangalore	17:50 to 18:10 Hrs
End of Day 2 for Seminar Hall A			

15 February 2018	Day 2 : TECHNICAL SESSIONS 6, 9, 12, 15		Seminar Hall B
Session 6 **Chairman:** **S S Nagaraj** OS & Director, LRDE, DRDO **Co Chairman:** **V S Radhakrishna** Sc 'G' , DLRL, DRDO **Duration:** 10:00 to 11:00 Hrs	**EW THREAT SIMULATORS AND EW TESTING / EVALUATION – I**		
	020R006	**Framework for High Fidelity Simulation of Radar Electronic Warfare Scenarios** Sourabh Jaiswal Sc 'E', Shweta Singh, Sc 'C', Sumant Mukherjee, Sc 'G' and S.B. Taneja Institute for Systems Studies and Analyses, DRDO, Delhi	10:00 to 10:20 Hrs
	002R002	**Test Method to Characterize the Chaff using Phased Array Tracking Radar** Raghavendra N A , Abhishek Kulkarni, Dodamani R L, Neelaraddi H K , Bharat Electronics Limited, Bangalore	10:20 to 10:40 Hrs
	068R039	**Complex Radar Simulation for Passive Surveillance Systems** V. Dhananjayulu, S. Sudha Rani, Dr.S. Varadarajan Defence Electronics Research Laboratory, DRDO, Hyderabad	10:40 to 11:00 Hrs
11:00 to 11:30 Hrs : Tea Break			
Session 9 **Chairman:** **Dr K Maheshwara Reddy,** OS & Director, DARE, DRDO **Co Chairman:** **Raghuram Aithal** AGM (TP) , BEL **Duration:** 11:30 to 12:50 Hrs	**EW SYSTEMS AND DF TECHNIQUES –III**		
	032R025	**Networked ELINT/ESM systems for Ground and Naval Applications** Hafedh Trigui Ultra Electronics TCS, Canada	11:30 to 11:50 Hrs
	041R046	**Assorted approaches for addressing local aerial surveillance and conflict operations** Gunvanta V. Mate Bharat Electronics Limited, Bangalore	11:50 to 12:10 Hrs
	027R020	**Hybrid Geo-Location for tactical C-ESM applications** Dr. Frank Langmann and Dr. Ulla Uebler Saab Technologies GmbH, Germany	12:10 to 12:30 Hrs
	071R023	**Stationary Emitter Location Using Differential Doppler Technique – A Study and Simulation** B.N. Lokesha, Sc 'F', Girish M. Sc 'D', Amit Kumar, STA 'B' , Defence Avionics Research Establishment (DARE), DRDO, Bangalore	12:30 to 12:50 Hrs
12:50 to 13:30 Hrs : Lunch Break			
13:30 to 14:00 Hrs : Time to Visit Technical Exhibition			
Session 12 **Chairman:** **Volker Brands** L3 Technologies, Narda Safety Test Solutions, Germany **Co Chairman:** **N Sarada** Sc 'F' , DLRL, DRDO **Duration:** 15:00 to 16:00 Hrs	**EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – II**		
	048R027	**Design Considerations for S/W Defined Direct Conversion Receivers** V. Srinivas, Sc 'E', Kumar Gautam, Sc 'F', Omkar Kothekar, Sc'D', K.Bhaskar Kumar, Sc'C' Defence Electronics Research Laboratory, DRDO, Hyderabad	15:00 to 15:20 Hrs
	058R056	**Analysis of effects of Noise on the performance of Digital Receiver** Santanu Kumar Sinha, Naveen Kumar S. Bharat Electronics Limited, Bangalore	15:20 to 16:40 Hrs
	R031	**A New-Generation, High Sensitivity Digital ELINT Receiver** Lalit Kumar Sc-'C', Kumar Gautam Sc -'F, V Dhananjayalu 'Sc-'E Defence Electronics Research Laboratory, DRDO, Hyderabad	15:40 to 16:00 Hrs
16:00 to 16:30 Hrs : Tea Break			
Session 15 **Chairman:** **David Lazaro** Indra, Spain **Co Chairman:** **C S Krishna Kumar** Sc 'F' , DLRL, DRDO **Duration:** 16:30 to 18:10 Hrs	**EW SOFTWARE ENGINEERING AND MODELING – II**		
	062R047	**A Robust Architecture for Protocol Analysis in the field of Satellite & Telecommunications** Ramesha, Dy Manager Bharat Electronics Limited, Bangalore	16:30 to 16:50 Hrs
	052R040	**Data Fusion of PSS, ESM and Radar For comprehensive Air Situation Picture** Ch. Baby Rani Sc 'E', S. Sudha Rani Sc 'F' , Defence Electronics Research Laboratory, DRDO, Hyderabad	16:50 to 17:10 Hrs
	010R049	**Nano Server for Airborne Applications** Sangeeta Srivastava, Nihar Ranjan, Saroj Bharti Central Research Laboratory, Bharat Electronics Limited, Bangalore	17:10 to 17:30 Hrs
	014R055	**Dynamic Spectrum Moderator for Military Internet of Things (MIoT)** Ariharan V, Subha P Eswaran Central Research Laboratory, Bharat Electronics Limited, Bangalore	17:30 to 17:50 Hrs
	054R057	**An Overview of System Management Solution in an open architecture based EW Receivers** Vinod Raphael Aranha, Santanu Kumar Sinha, Naveen Kumar S Bharat Electronics Limited, Bangalore	17:50 to 18:10 Hrs
End of Day 2 for Seminar Hall B			

16 February 2018	Day 3: TECHNICAL SESSIONS 16 & 19 and INVITED TALK 6		J N Tata Auditorium
Invited Talk 6	**Counter-Drone Solutions : The Multi-Domain, Multi-Spectral Approach** Mr Alessio Campana , Sr. Eng. Sci. Office, Elettronica S.p.A., Italy		**09:00 to 09:30 Hrs**
Session 16 **Chairman:** **Alessio Campana** Elettronica , Italy **Co Chairman:** **Sanjay Pandav** Sc 'F', DLRL, DRDO **Duration:** 09:30 to 10:30 Hrs	**EW SYSTEMS AND DF TECHNIQUES– IV**		
	050R032	**Implementation of a High Resolution Time Interval Counter in TDOA Direction Finding Receiver** V. Balakrishna, Sc 'D', Sudha Rani, Sc 'F' Defence Electronics Research Laboratory, DRDO, Hyderabad	09:30 to 09:50 Hrs
	051R037	**Algorithms for Passive Emitter Location** S. Sudha Rani, Sc 'F' Defence Electronics Research Laboratory, DRDO, Hyderabad	09:50 to 10:10 Hrs
	067R041	**Trends in VHF /UHF Direction Finding Systems** Y.Purushottam, Sanjay Pandav, P.Muralidhar Defence Electronics Research Laboratory, DRDO, Hyderabad	10:10 to 10:30 Hrs
10:30 to 11:00: Tea Break			
Session 19 **Chairman:** **J M Pascual Ruiz** Indra, Spain **Co Chairman:** **Ms Sudha Rani** Sc 'F' , DLRL, DRDO **Duration:** 11:00 to 12:20 Hrs	**EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – III**		
	035R068	**Threshold Estimation Technique for Improved IDR and Sensitivity of ESM Receiver** Pankaj R. Pacharne Bharat Electronics Limited, Hyderabad	11:00 to 11:20 Hrs
	038R071	**Use of Parallel FFT and Multiple Sample Frequencies to Increase IF Bandwidth of Digital Receiver** M Pradeep Reddy & T N Tirupathirao Bharat Electronics Limited, Hyderabad	11:20 to 11:40 Hrs
	044R073	**Wideband Digital Receivers for next generation EW systems** Vijay Ananth K, Muni Prasad K V, Vimal R and Mariappan S Data Patterns (India), Pvt Ltd, Chennai	11:40 to 12:00 Hrs
	053R075	**Digital Modulation classification - A Machine Learning based approach for EW receivers** Omkar Kothekar V. Srinivas K.Bhaskar Kumar and Kumar Gautam Defence Electronics Research Laboratory, DRDO, Hyderabad	12:00 to 12:20 Hrs
12:25 to 13:15 Hrs	**Conclusion Session:** **Discussion on Feedback** **Distribution of Certificates** **Draw of Lucky Dip** **Vote of thanks** **Conclusion**		
13:15 to 14:00 Hrs : Lunch Break			
14:00 to 16:00 Hrs : Final opportunity to Visit Stalls and Interact with Exhibitors. End of the EWCI 2018			

16 February 2018	Day 3: TECHNICAL SESSIONS 17 & 20		Seminar Hall A
Session 17 **Chairman:** **Hafedh Trigui** Ultra Electronics TCS, Canada **Co Chairman:** **M V Ravindra Kumar** Sc 'F', DLRL, DRDO **Duration:** 09:30 to 10:30 Hrs	**ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – III**		
	064R029	**Digital Synthesis of Counter Signals for Communication ECM Systems in HF to C Band Frequency Ranges** Ch. Arun Kumar, Sc E, Manish Kumar Dehariya, Sc D, M.Madhusudan Reddy, Sc D, MV Ravindra Kumar, Sc-F Defence Electronics Research Laboratory, DRDO, Hyderabad	09:30 to 09:50 Hrs
	028R064	**Implementation of SLB Scheme in Missile Channel of Phased Array Tracking Radar for Command Guidance System** Raghavendra N A, Abhishek Kulkarni, Doddamani R L , Neelaraddi H K, Bharat Electronics Limited, Bangalore	09:50 to 10:10 Hrs
	029R065	**Performance Analysis of High Resolution Radar Waveforms for Naval Tracking Radar** Nirbhay Kumar Singh, Vikas Kumar, Fouziya C, T.Venkatmuni , Kalyani Murthy, Bharat Electronics Limited, Bangalore	10:10 to 10:30 Hrs
10:30 to 11:00 Hrs : Tea Break			
Session 20 **Chairman:** **Steve Walley** dB Control, USA **Co Chairman:** **Y Purushottam** Sc 'F' , DLRL, DRDO **Duration:** 11:00 to 12:20 Hrs	**EW SYSTEMS AND DF TECHNIQUES– V**		
	013R052	**Emitter Location-Fix Algorithms based on Non-Linear Optimization** A.R. Sachin, Sc 'E', Dr. K. Maheswara Reddy, OS & Director, Defence Avionics Research Establishment, DRDO, Bangalore	11:00 to 11:20 Hrs
	047R062	**Issues in Realization of EW Systems for High Altitude Platforms** Anupam Sharma, N SreeLakshmi and Shilpa Gupta Defence Electronics Research Laboratory, DRDO, Hyderabad	11:20 to 11:40 Hrs
	060R063	**Latest Developments in Position Fix Methods for RF Emissions From Diverse Platforms** Anupam Sharma, Sc'G' and P Naveen Kumar, Sc'E' Defence Electronics Research Laboratory, DRDO, Hyderabad	11:40 to 12:00 Hrs
	055R076	**Finger Printing Techniques for Next Generation Radars** Anamika Patel, T. Srikanth, T. Ravikishore and N. Sarada Defence Electronics Research Laboratory, DRDO, Hyderabad	12:00 to 12:20 Hrs
13:15 to 14:00 Hrs: Lunch Break			

16 February 2018	Day 3: TECHNICAL SESSIONS 18 & 21		Seminar Hall B
Session 18 **Chairman:** **J Shanker Rao** Former Sc 'H' DLRL, DRDO **Co Chairman:** **S Jayathirtha** Sc 'G' , DLRL, DRDO **Duration:** 09:30 to 10:30 Hrs	**COMMUNICATION EW – II**		
	059R035	**Advanced Encryptions in Mobile Communications and Feasibility Analysis for Interception** RK Rudheesh, Sc-E , Ravi Tudu Sc D, Shivendra Kumar Gupta, Sc- E , MV Ravindra Kumar, Sc-F Defence Electronics Research Laboratory, DRDO, Hyderabad	09:30 to 09:50 Hrs
	065R036	**Comparative Study of Localization Techniques for Mobile Communication from an EW-Perspective** Shivendra K Gupta, Sc E, CS Krishna Kumar, Sc F , Rudheesh R K, Sc E, MV Ravindra Kumar, Sc F Defence Electronics Research Laboratory, DRDO, Hyderabad	09:50 to 10:10 Hrs
	034R067	**Phase based sector resolution in Angle of Arrival (AoA) computation using a five element circular array** Avinash Kumar Singh Bharat Electronics Limited, Hyderabad	10:10 to 10:30 Hrs
10:30 to 11:00 Hrs : Tea Break			
Session 21 **Chairman:** **Robby Miles** Ultra Electronics TCS, Canada **Co Chairman:** **Dr Y Hemalatha** Sc G' , DLRL, DRDO **Duration:** 11:00 to 12:20 Hrs	**EW RECEIVERS AND RF SUB SYSTEMS – III**		
	030R066	**Receiver performance with Antenna switching** Girish M, Sc 'D', Abhijit S Kulkarni, Sc 'D', Hemant Paranjape, Sc 'E' , Vengadesh Kumar, Sc 'E' Defence Avionics Research Establishment (DARE), DRDO, Bangalore	11:00 to 11:20 Hrs
	036R069	**Development of RF over Fiber module for Ultra wideband EW Receiver** D Arjuna Rao, D Pushpa Latha, Sk Raziya Begum , R Sarath Chandra Bharat Electronics Limited, Hyderabad	11:20 to 11:40 Hrs
	037R070	**Enhancement of Sensitivity and Dynamic Range of ELINT System** D. Pushpa Latha, SK Raziya Begum, R. Sarath Chandra, D. Arjuna Rao, Bharat Electronics Limited, Hyderabad	11:40 to 12:00 Hrs
	070R078	**All Metal Broadband Linear Array Antenna with BOR Elements** M. Balachary, Madhavi Chandra and B Lokeshwara Srinvias Defence Electronics Research Laboratory, DRDO, Hyderabad	12:00 to 12:20 Hrs
13:15 to 14:00 Hrs: Lunch Break			