Second International Conference on Electronic Warfare – EWCI 2012
NSSC, Indian Institute of Science, Bangalore (21-24 February 2012)
PROGRAMME SUMMARY

21 Feb 2012	**Pre Conference Tutorials**	
08:00 to 08:45 Hrs	**Registration for the Tutorials**	
09:00 to 09:30 Hrs	Inauguration of Pre Conference Tutorial By **Dr R Sreehari Rao**, Outstanding Scientist, Chief Controller R&D (ECS), DRDO, New Delhi,India	
09:30 to 11:30 Hrs	Tutorial 1 : Radio Frequency Shared Apertures and Multifunctional Systems By Dr Andrea De Martino,Elettronica, Italy	
11:30 to 12:00 Hrs	Tea Break	
12:00 to 13:30 Hrs	Tutorial 2 : Systems for Information and Cyber Warfare By Mr Davide Cannone & Mr Sergio Tortora, Elettronica, Italy	
13:30 to 14:30 Hrs	Lunch Break	
14:30 to 16:30 Hrs	Tutorial 3 : Airborne Self Protection Suite (SPS) and DIRCM By Mr JM Pascual and Mr Pedro Osma, INDRA, Spain	
16:30 to 17:00 Hrs	Tea Break	
17:00 to 18:30 Hrs	Tutorial 4 : EW and Radar Threat Simulators, Testing & Evaluation By Mr Walter Schulte, Agilent Technologies, USA	
22 Feb 2012	**Day 1 : Inaugural Session, Plenary Session and Technical Sessions**	
08:00 to 08:45 Hrs	**Registration for the Conference**	
09:00 to 10:35 Hrs	**Inauguration of the Conference** **Inaugural Address by the Chief Guest, Patron and Dignitaries Addresses, Keynote Address, Theme Talk** **A Talk about the Conference and Release of the Souvenir**	
10:35 to 11:00 Hrs	**Inauguration of Technical Exhibition**	
11:00 to 11:30 Hrs	Hi Tea	
Plenary Session **11:30 to 13:00 Hrs (3)**	**Plenary Session Speakers:** Dr Sreehari Rao, Outstanding Scientist, Chief Controller R&D (ECS), DRDO, New Delhi, India Lt Col (Ret) Walter Wolf, Former President, Association of Old Crows (AOC), USA Mr I V Sarma, Director (R&D), Bharath Electronics Limited (BEL), Bangalore, India	
13:00 to 14:00 Hrs	Lunch Break	
14:00 to 14:30 Hrs	**Invited Talk 1: New Technologies in Next Generation EW By Mr Eyal Danan and Mr Nitzan Barkay**	
14:30 to 15:50 Hrs (5)	Session 1 : ***J N Tata Auditorium***	EW SYSTEMS AND DF TECHNIQUES
14:30 to 15:50 Hrs (4)	Session 2 : ***Seminar Hall A***	ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - I
14:30 to 15:30 Hrs (3)	Session 3 : ***Seminar Hall B***	NETWORK CENTRIC AND INFORMATION WARFARE
16:00 to 16:30 Hrs	Tea Break	
16:30 to 18:10 Hrs (5)	Session 4 : ***J N Tata Auditorium***	EW RECEIVERS AND RF SUB SYSTEMS - I
16:30 to 17:30 Hrs (4)	Session 5 : ***Seminar Hall A***	ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - II
22 Feb 2012	**19:00 Hrs Cultural Program** **20:00 Hrs Conference Dinner**	
23 Feb 2012	**Day 2 : Technical Sessions**	
09:00 to 09:30 Hrs	**Invited Talk 2: The Strategic Impact of MilSatComs on EW By Asif Anwar**	
09:30 to 11:10 Hrs (5)	Session 6 : ***J N Tata Auditorium***	SELF PROTECTION SUITES AND JAMMERS
09:30 to 10:50 Hrs (4)	Session 7 : ***Seminar Hall A***	EW/EO THREAT STIMULATORS AND EW TESTING/EVALUATION-I
09:30 to 10:50 Hrs (4)	Session 8 : ***Seminar Hall B***	COMMUNICATION EW - I
11:00 to 11:30 Hrs	Tea Break	
11:30 to 13:10 Hrs (5)	Session 9 : ***J N Tata Auditorium***	EW ANTENNAS & ACTIVE PHASED ARRAY SYSTEMS - I
11:30 to 13:10 Hrs (5)	Session 10 : ***Seminar Hall A***	EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - I
11:30 to 12:30 Hrs (5)	Session 11 : ***Seminar Hall B***	COMMUNICATION EW – II
13:00 to 14:00 Hrs	Lunch Break	
14:00 to 14:30 Hrs	**Invited Talk 3: Electronic Warfare Capability Innovation - Conceptual Framework of The Italian Air Force by Col . Giuseppe SGAMBA Commander , Italian Air Force**	
14:30 to 16:10 Hrs (5)	Session 12 : ***J N Tata Auditorium***	EW RECEIVERS AND RF SUB SYSTEMS - II
14:30 to 15:30 Hrs (4)	Session 13 : ***Seminar Hall A***	EW/EO THREAT STIMULATORS AND EW TESTING/EVALUATION-II
14:30 to 15:50 Hrs (4)	Session 14 : ***Seminar Hall B***	EW SYSTEMS INSTALLTION MAINTENANCE, SW ENGINEERING AND MODELLING/ SIMULATION - I
16:00 to 16:30 Hrs	Tea Break	
16:30 to 18:10 Hrs (5)	Session 15 : ***J N Tata Auditorium***	EW ANTENNAS & ACTIVE PHASED ARRAY SYSTEMS - II
16:30 to 18:10 Hrs (5)	Session 16 : ***Seminar Hall A***	EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - II
24 Feb 2012	**Day 3: Final Technical Sessions, Panel Discussion and Closing Function**	
09:00 to 09:30 Hrs	**Invited Talk 4 : Multifunction Radio Frequency Systems with Shared Resources and Apertures : The New Paradigm for Future Radar and EW Systems By Dr Andrea De Martino**	
09:30 to 11:10 Hrs (5)	Session 17 : ***J N Tata Auditorium***	ESM/ELINT AND EO BASED EW SYSTEMS
09:30 to 11:10 Hrs (5)	Session 18 : ***Seminar Hall A***	EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - III
09:30 to 10:30 Hrs (4)	Session 19 : ***Seminar Hall B***	EW SYSTEMS INSTALLTION MAINTENANCE, SW ENGINEERING AND MODELLING/ SIMULATION - II
11:00 to 11:30 Hrs	Tea Break	
11:45 to 12:30 Hrs	**Panel Discussion : *J N Tata Auditorium***	
12:30 to 13:00 Hrs	**Closing Function : *J N Tata Auditorium***	
13:00 Hrs Lunch		
16:00 Hrs	**Closing of the Technical Exhibition**	

Pre Conference Tutorials on 21 February 2012 — Venue: Seminar Hall A

Inauguration of Pre Conference Tutorial

By **Dr R Sreehari Rao**, Outstanding Scientist, Chief Controller R&D (ECS), DRDO, New Delhi

Venue: Seminar Hall A

Duration: 09:00 to 09:30 Hrs

Tutorial 1

***Duration:* 09:30 to 11:30 Hrs**

RADIO FREQUENCY SHARED APERTURES AND MULTIFUNCTIONAL SYSTEMS

By Mr Andrea De Martino, Elettronica, Italy

Dr. Andrea De Martino is a Doctorate (Laurea) in Nuclear Engineering (Electronic Track) 1970 and Ph D in Automatic Control from the University of Rome. He is a Researcher in the field of Systems Theory and Automatic Control at the Electronic Engineering Institute of the University of Rome (1970-1971). He worked as Radar System Designer and Chief Engineer at Selenia S.p.A –Rome from 1973 to 1981, ranging from surveillance and tracking radars to multifunction phased arrays radars.

Dr. De Martino is author of many technical papers on radar and EW techniques and technologies presented at various classified Conferences and specialised magazines. He is currently the Technical Director of the Euro-DASS Consortium at Elettronica S.p.A, Italy.

Tutorial Coverage:

The operation of past and current EW systems installed on Military aircraft and ships have always been impaired by the RF transmit operation of further required platform functions, such as Radar and Communications equipment. The usual compatibility technique to allocate a different RF band to each required function is insufficient as many RF functions operate within the same bandwidth and transmitters usually generate signals at harmonics of the carrier frequencies, which produce heavy interference to the on-board receivers located in close proximity to them. Compatible operation of EW receivers with such transmitters require that they have to be displaced at some distance from them, to adopt frequency filtering and signal blanking capabilities, to implement priority rules of transmission usage within the various platforms equipment in order to achieve some power decoupling and the reduction of interferences.

Those problems will be briefly addressed in the initial part of the tutorial together with the fixtures introduced in the architecture of airborne and shipboard EW equipment to cope with them. Examples of current airborne and shipboard EW systems, some of them already provided with AESA, will be presented to show the benefits of AESA towards a solution to the above mentioned problems. The compatibility issues suffered by the EW systems (RWR, ESM and ECM) are common to the further onboard RF equipment such as Radar, Communications and Navigation. These functions are currently performed by dedicated equipment, usually each composed by one or more antennas, one or more receivers and transmitters, thus providing a lot of nightmares to the overall equipment integrator.

A solution can be offered by novel technologies such as large bandwidth RF Active SS Electronically Scanning Antennas (AESA), which can provide Shared Apertures among a number of RF functions and the powerful Field Programmable Digital Gate Arrays (FPGA), which can both squeeze the size of the various Signal Processors as well as constitute a common Signal Processor used in time sharing by the various functions. The time shared operation of the platform overall RF System, which we call Multi-function Integrated RF System (MIRFS) has to be ruled by common processor provided with a proper Scheduler and Resources Allocator (SRA), a software program which manages the RF system resources and interfaces with the platform's Main Processor. Examples of future airborne and ship-borne EW systems, provided with SRA and AESA, will be presented to show the benefits of MIRFS in order to achieve enhanced compatible operation of all the onboard RF functions.

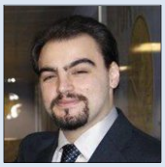
Tea : 11:30 to 12:00 Hrs

Tutorial 2

***Duration:* 12:00 to 13:30 Hrs**

DESIGNING SYSTEMS FOR INFORMATION AND CYBER WARFARE

By Mr Davide Cannone and Mr Sergio Tortora, Elettronica, Italy



Mr Davide Cannone is a System Analyst at the Research and Advanced System Design department in Elettronica S.p.A., in the field of Network Centric Systems and Security. He has a Masters Degree in Computer Science Engineering at the University of Rome in the field of network security.

Mr Sergio Tortora is a Project Manager in the "Research and Advanced System Design" department and holds a degree in Electronic Engineering from University of "Tor Vergata", Rome. In Elettronica S.p.A., he has been involved in design, development, test and research activities related to the processes of de-interleaving and Common Operational Picture reconstruction etc.

Tutorial Coverage:

The importance of information and the central role it plays in warfare is a concept already integrated in the mindset of every military strategist. This importance can be summarized as follows:

- It is a critical aspect for operations of surveillance, situation assessment, strategy development, and assessment of alternatives and risks for decision making.
- Having at disposal a large pool of information can increase the possibility to forecast possible future outcomes.
- By controlling the information, it is possible to influence the adversary's perception.

Information is abstract and inexhaustible, and its relationship to utility is complex and nonlinear, strongly dependent of the scenario. In order to again information advantage, designed systems have to follow a process that pass through the phases of collecting data (e.g., sensing), organizing (e.g., filtering function) and correlating data (e.g., data fusion techniques), creating knowledge (e.g., reasoning function) and disseminating it. All of these are generally represented in the OODA loop, often used as a model for Command and Control systems. In this view, a Platform Centric paradigm for information warfare was not enough capable to fulfil the tasks presented above in an efficient way. Thanks to the continuous technological evolution of telecommunication and computing, there was a gradually shifting from a Platform Centric to a Network Centric paradigm in military operations. In Network Centric operations of a warfare scenario, different platforms of the same force are supposed to be strongly connected by a telecommunication infrastructure. From a better perception of the surrounding environment, an improved decision making would be derived, that in turn would increase the mission effectiveness.

However the network exploitation could introduce new kind of weaknesses in military systems. Indeed, opponents could try to attack the network itself in order to steal information, create fake information or disrupt network connections among cooperating platforms. Such actions are collective related to the discipline called Cyber Warfare.

Threat modelling is an iterative process of enumerating and risk-rating vulnerabilities of the analyzed systems, recognizing attacks that a malicious user can execute by exploiting vulnerabilities and identifying the security requirements that the system has to satisfy. Analysts and system developers, dealing with Cyber Warfare, should want to ensure that systems respect the following principles: availability, confidentiality, integrity, anonymity, non-repudiation.

Lunch : 13:30 to 14:30 Hrs

Pre Conference Tutorials on 21 February 2012 Venue: Seminar Hall A

Tutorial 3

Duration: **14:30 to 16:30 Hrs**

AIRBORNE SELF PROTECTION SUITE (SPS) AND DIRCM

By Mr JM Pascual and Mr Pedro Osma, INDRA , Spain

Mr J M Pascual is a Telecommunication Engineer. In INDRA since 1989, he has worked in Microwave development and later in EW/SIGINT system engineering and Innovative Developments, including ELINT analysis and Sensors, DRFM, Wide Band Technology, Digital Reception and Scalable Sensor Architectures. Mr. Pascual worked for Spanish Intelligence Network and also multiple international projects for Tactical EW and Self-protection/Electronic Support on Radar band Air and Naval Platforms. He is currently Technology Areas Director in INDRA's Technology and Product Management Directorate.

Mr Pedro Osma is Project Management Professional and Telecommunication Engineer. In INDRA since 1999, he has been working as an EW engineer, in the development of ELINT SW analysis and Satellite Communications Intelligence. He has participated in remarkable defense projects installed in different platforms of Spanish MOD. Mr. Osma is in-charge of MANTA DIRCM. He has been a speaker in conferences devoted to DIRCM and contributes to NATO study groups (NAFAG). He is currently in charge of DIRCM System area within INDRA.

Tutorial Coverage:

This tutorial analyses the current aircraft protection scenario, focusing on both the threats and the airborne defense systems. Specifically, the tutorial covers the following topics: Threat classification and characteristics; description and analysis of Self Protection Systems; and detailed review of the main components of a self protection suite.

A comprehensive review of Operational Concept, Architecture and Key features of the Self Protection Suite subsystems will be completed in the tutorial. The involved technologies will be described taking the Indra solution as the basis. In this sense, the most advanced concepts regarding new generation systems will be presented using also examples from Indra's last developments on RWR, JAMMERs an DIRCM Technology.

Tutorial Index:

1. Threat classification and characteristics
2. Self Protection Suite
   - 2.1. Self Protection Suite Concept
   - 2.2. Architecture and Subsystem review
   - 2.3. Operational Life Cycle
3. RWR
   - 3.1. Main Requirements & Evolution
   - 3.2. New Generation RWR Indra's approach
     - 3.2.1. Operational Concept
     - 3.2.2. Architecture
     - 3.2.3. Key Features
4. ECM
   - 4.1. Main Requirements & Evolution
   - 4.2. New Generation DJUs Indra's approach
     - 4.2.1. Operational Concept
     - 4.2.2. Architecture
     - 4.2.3. Key Features
5. DIRCM
   - 5.1. Main Requirements & Evolution
   - 5.2. New Generation DIRCM Indra's approach
     - 5.2.1. Operational concept
     - 5.2.2. DIRCM architecture
     - 5.2.3. Key features

Tea : 16:30 to 17:00 Hrs

Tutorial 4

Duration: **17:00 to 18:30 Hrs**

EW AND RADAR THREAT SIMULATORS, TESTING AND EVALUATION

By Mr Walter Schulte, Agilent Technologies, USA

Mr Walter Schulte obtained BSEE degree from University of California, Los Angeles, 2003. He is currently Aerospace and Defense Applications Engineer in the Microwave Communications Division, located in Santa Rosa, California. Walt joined Agilent in 2011 after working for NAVAIR as a systems and test engineer for an electronic warfare countermeasure suite in Pt. Mugu, California. Formerly, he worked for Applied Signal Technology as a scientist developing synthetic aperture radar simulations and models for a government agency. Prior to that, he served as a First Division officer aboard a frigate stationed in San Diego.

James Rose

Ultra Electronics TCS Inc., USA

Tutorial Coverage:

This paper covers an overview of Electronic Warfare. Tactical scenarios and use-cases will be described for land, air, and sea environments, including example ECM platforms for Improvised Explosive Devices, Stand-off and Support Jamming, Airborne Self-protection Jamming and Ship Self-protection Jamming. Tutorial covers derivation of the one-way Link Equation as the basis for all EW functions and use the Link Equation and Radar Cross Section to derive the equation for Self-protection Jamming. Brief discussion on the merits of Direction-Finding systems for reducing both the complexity of threat identification and data throughput requirements and Threat Identification for ECM purposes and its impact on Receiver design are presented.

The Tutorial Presents a demonstration of how J/S can be achieved through a variety of ECM techniques and how these techniques grew in complexity to maintain J/S over threat radars as they grew in sophistication when pulse compression and Doppler Processing were introduced to improve processing gain and radar accuracy. It discusses jam-resistant mono-pulse radars and angle-jamming countermeasures such as Towed Decoys, Illuminated Chaff, Cross-pol and Cross-eye Jamming. The relative merits and credibility of each form of angle jamming for mono-pulse radar will be presented, as well as advantages of digital architecture for achieving the necessary phase conditions for producing the most plausible technique are presented.

Covering warfare modelling, simulation and emulation, will discuss different levels of Modelling, Fidelity and Repeatability – RF and digital hardware-in-the-loop, Hybrid configurations, and Flight Testing. Also Covers phenomena such as clutter, noise, and target radar cross section and show how ECM systems may be used to provide RF-to-RF fading for testing of radar clutter rejection circuits, Radar Electronic Counter-Counter Measures (ECCM), and Radar Operator Performance to reduce flight testing costs.

Finally, mobile ECM test and analysis including equipment and techniques for measuring ECM techniques and effectiveness, Radar Threat Simulations used to stimulate ECM. Tracking algorithms and technique generators are provided. We will conclude by providing resources for making network, power, noise, and phase noise measurements for RF blocks and components.

EWCI 2012 INAUGURAL FUNCTION PROGRAMME

National Science Seminar Complex, Indian Institute of Science, Bangalore

09:00 to 11:00 Hrs, Wednesday, 22 February 2012

08:00 to 08:45 Hrs	**Conference Registration**	
09:00 to 09:10 Hrs	**Invocation** **Lighting the lamp**	
09:10 to 09:20 Hrs	**Introductory Address**	**By Conference Chair** **Dr U K Revankar** President, AOC India Chapter Former Director, DARE, DRDO, Bangalore
09:20 to 09:25 Hrs	**Inauguration of Conference and Release of Souvenir**	**By Chief Guest** **Padma Shri Dr V K Sarasvat** Scientific Advisor to Defence Minister Director General, Defence R&D Organisation Min of Defence, Govt. of India
09:25 to 09:40 Hrs	**Inaugural Address**	**By The Chief Guest**
09:40 to 09:50 Hrs	**Patron's Address**	**Mr Anil Kumar** Chairman and Managing Director Bharat Electronics Limited, Bangalore
09:50 to 10:00 Hrs	**Theme Talk**	**Vice Admiral Shekhar Sinha,** PVSM AVSM NM BAR, CISC Integrated Defence Staff, India
10:00 to 10:10 Hrs	**Keynote Address**	**Mr G Elangovan** DS and Chief Controller R&D (Avionics) Defence R&D Organisation Min of Defence, Govt. of India
10:10 to 10:20 Hrs	**Address By AOC Representative**	**Lt Col (Ret) Walter Wolf** Former President Association of Old Crows (AOC), USA
10:20 to 10:30 Hrs	**About the Conference**	**By Chair, Conference Technical Committee** **Mr T N Yadgiri Rao** Associate Director, DLRL, Hyderabad, India Min of Defence,Govt. of India
10:30 to 10:35 Hrs	**Vote of Thanks**	**By Conference Co-Chair** **Mr I V Sarma** Director (R&D) Bharat Electronics Limited, Bangalore
10:35 to 11:00 Hrs	**Inauguration and Visit of Technical Exhibition**	**By the Chief Guest and Dignitaries**
11:00 to 11:30 Hrs	**Hi Tea**	

Plenary Session on 22 Feb 2012 — Venue: J N Tata Auditorium

Chairman: Dr U K Revankar, Former Director DARE, President AOC India Chapter
Co Chairman: Dr M Lakshminarayana, Scientist, DLRL, DRDO, India
Duration: 11:30 to 13:00 Hrs

Plenary Talk 1	**Exploiting EMS for the Indian EW** Dr Sreehari Rao, Outstanding Scientist, Chief Controller R&D (ECS), DRDO, New Delhi, India	11:30 to 12:00 Hrs
Plenary Talk 2	**EW Technology Trends in a Complex Operational Environment** Lt Col (ret) Walter Wolf, Former President, Association of Old Crows (AOC), USA	12:00 to 12:30 Hrs
Plenary Talk 3	**Developments in Indian EW – An industry Perspective** Mr I V Sarma, Director (R&D), Bharath Electronics Limited (BEL), Bangalore, India	12:30 to 13:00 Hrs

Lunch : 13:00 to 14:00 Hrs

Technical Sessions on 22 Feb 2012 — Venue: JN Tata Auditorium

Invited Talk 1	069R031	**New Technologies in Next Generation EW** By Mr Eyal Danan and Mr Nitzan Barkay, ELTA Systems Ltd, Israel	14:00 to 14:30 Hrs
Session 1 **Chairman :** Maj Gen Rajesh Pant VSM, Commandant, MCTE **Co Chairman :** M V Gowtama GM, BEL **Duration :** **14:30 to 15:50 Hrs**		**EW SYSTEMS AND DF TECHNIQUES**	
	016R013	**FDOA Location: Principles and Real Data Analysis** Dario Benvenuti Elettronica SpA, Rome, Italy	14:30 to 14:50 Hrs
	073R067	**Essential Considerations for DF Sensors in State-of-the-art Strategic & Tactical EW Systems** Wolfgang Ehle Rohde & Schwarz International Operations GmbH, Munich	14:50 to 15:10 Hrs
	035R001	**Passive Emitter Tracking: theory and experimental data** Dario Benvenuti Elettronica SpA, Rome, Italy	15:10 to 15:30 Hrs
	081R082	**Intelligent Sensor Nodes, ISn What are we missing?** Mark Prichard Aeroflex Cupertino, USA	15:30 to 15:50 Hrs
	086R---	**Missile detection system for ground vehicle defense** Rozen, Elisra	15:50 to 16:10 Hrs
Tea : 16:00 to 16:30 Hrs			
Session 4 **Chairman :** Walter Wolf Former President AOC, USA **Co Chairman :** R Rama Rao Scientist, DLRL, DRDO **Duration :** **16:30 to 18:10 Hrs**		**EW RECEIVERS AND RF SUB SYSTEMS - I**	
	040R---	**Fast Switching Synthesizers (FSS) for EW Applications** Jason Seifert Spinnaker Microwave Inc, Santa Clara, CA, USA	16:30 to 16:50 Hrs
	046R048	**Distributed Architecture For ESM Receivers** S Sudha Rani, R Rama Rao, TN Yadgiri Rao Defence Electronics Research Laboratory, Hyderabad, India	16:50 to 17:10 Hrs
	049R039	**A Novel Technique to Achieve High Accuracy and High Sensitivity in Wideband DIFM Receiver** M K Das, S B Singh, A K Gupta, T N Yadagiri Rao Defence Electronics Research Laboratory, Hyderabad, India	17:10 to 17:30 Hrs
	045R069	**Comprehensive BITE/CAL/Diagnostics Scheme for ESM Receivers** S Sudha Rani, Sunil Kumar, V Balakrishna Defence Electronics Research Laboratory, Hyderabad, India	17:30 to 17:50 Hrs
	042R056	**Very High Accuracy Two Dimensional Direction Finding Receiver** M K Das, S V Umamaheswari, S B Singh, A K Gupta, R Rama Rao, T N Yadagiri Rao Defence Electronics Research Laboratory, Hyderabad, India	17:50 to 18:10 Hrs

Technical Sessions on 22 Feb 2012 — Venue: Seminar Hall A

Session 2 **Chairman:** Air Vice Marshal A Subramaniam AVSM ACAS Ops (SPACE) Air HQrs **Co Chairman :** D D Sharma Scientist, DLRL, DRDO **Duration:** **14:30 to 15:50 Hrs**		**ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS – I**	
	034R017	**Roadmap on GaN Technology Applied to Modern EW Phased Array** Barbara Orobello, Rossella Diciomma Elettronica S.p.A.,Rome, Italy	14:30 to 14:50 Hrs
	011R050	**Design and Development of GaN Basic Power Module over 1-2.5GHz Frequency Band** J.Sreenivas, Y.Anasurya, V.Revathi Defence Electronics Research Laboratory, Hyderabad, India	14:50 to 15:10 Hrs
	009R009	**Development of 2 to 3 Octave Band Helix Mini-TWTs for MPMs in EW Applications** Tushar K Ghosh, Anthony J Challis, Anthony Tokeley, Michael J Duffield,Kevin Rushbrook, Ian Poston, Daniel Scott, Alan Jacob, Darrin Bowler e2v Technologies Ltd, UK	15:10 to 15:30 Hrs
	005R006	**Solid State Transmitter – EA (Electronic Attack) Consideration** P Vinay Kumar ICOMM Tele Ltd, Hyderabad, India	15:30 to 15:50 Hrs
Tea : 16:00 to 16:30 Hrs			
Session 5 **Chairman:** Dr Lalit Kumar Director, MTRDC, DRDO **Co Chairman :** R V Hara Prasad Scientist, DLRL, DRDO **Duration:** **16:30 to 17:50 Hrs**		**ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS – II**	
	056R055	**Digital Phase & Amplitude Imbalance Correction and Carrier Suppression in Quadrature Sampling Based DRFM Subsystem** Sourabh Kesharwani, N Satish Kumar Reddy, Uttam M Magdum, D D Sarma , J Shanker Rao Defence Electronics Research Laboratory, Hyderabad, India	16:30 to 16:50 Hrs
	060R028	**Optimizing High Reliability Power Distribution System Designs for Efficiency, Size & Weight** Leonard Leslie VPT, Inc. A Heico Company, USA	16:50 to 17:10 Hrs
	058R072	**Digital Gain Equalization Technique for DRFM based EA System** Sourabh Kesharwani, N Satish Kumar Reddy, Uttam M Mahavir, D D Sarma ,J Shanker Rao Defence Electronics Research Laboratory, Hyderabad, India	17:10 to 17:30 Hrs
	087R078	**Development of Broadband Helix TWTs, Microwave Power Modules and Transmitters for EW Applications** S. Umamaheshwara Reddy, P. Sidharthan, H. S. Sudhamani, S. Subramanian, M. Santra, S. K. Datta, S. Raina, R. Seshadri, S. Kamath, and Dr Lalit Kumar	17:30 to 17:50 Hrs

Technical Sessions on 22 Feb 2012 — Venue: Seminar Hall B

Session 3 **Chairman:** V S Mahalingam Director CAIR, DRDO **Co Chairman :** G Raghavaiah Scientist, DLRL, DRDO **Duration:** **14:30 to 15:30 Hrs**		**NETWORK CENTRIC AND INFORMATION WARFARE**	
	080R074	**Distributed Simulation of Electronic Warfare Command And Control Scenarios** Sergio Tortora, Davide Cannone, Giuseppe F. Italiano, Maurizio Naldi, Andrea Sindico Elettronica, Rome, Italy	14:30 to 14:50 Hrs
	018R037	**Semantic Web Based Software for Network Centric Electronic Warfare Data Fusion** G.Siva Prasad,S.K.Gupta Defence Electronics Research Laboratory, Hyderabad, India	14:50 to 15:10 Hrs
	071R003	**A Note on Resource Allocation in Multi-Agent Systems** Moon K Chetry, Dipti Deodhare, Kshipra Gurunandan Centre for Artificial Intelligence and Robotics, Bangalore, India	15:10 to 15:30 Hrs
Tea : 16:00 to 16:30 Hrs			

Cultural Program	**By Abhinava Dance Company** **Choreographer: Ms Nirupama and Rajendra**	**19:00 to 20:00 Hrs**
Conference Dinner	**Venue: The Hotel Lalit Ashok, Bangalore**	**20:00 Hrs**

Technical Sessions on 23 Feb 2012 — Venue: JN Tata Auditorium

Invited Talk 2 **J N Tata Auditorium**		**The Strategic Impact of MilSatComs on Electronic Warfare** By Asif Anwar, Strategy Analytics Ltd., UK	**09:00 to 09:30** Hrs
Session 6 **Chairman :** Vice Admiral Satish Soni AVSM NM, DCNS IHQ **Co Chairman :** Dr M Lakshminarayana Scientist, DLRL, DRDO **Duration :** **09:30 to 11:10 Hrs**		**SELF PROTECTION SUITES AND JAMMERS**	
	063R026	**Airborne Integrated Multiband Self-protection Suites** J.M.Pascual, D.Lázaro, M.Solano, A.P.Casao, P.Osma Defence Systems, Indra, SPAIN	09:30 to 09:50 Hrs
	004R---	**Analyses of Effectiveness of Off-Board Angle Deception Technique -Towed Decoy** Kalpana Kaithal, Pankaj Sati,Aparna Malhotra Institute for System Studies and Analysis, New Delhi, India	09:50 to 10:10 Hrs
	008R008	**Mission Configurable Self Protection Solutions** Christer Zätterqvist Saab Electronic Defence Systems, Sweden	10:10 to 10:30 Hrs
	014R038	**Anti Jamming Performance Evaluation for a Military VSAT Communication Satellite Links Under Severe Jamming Environment During Acupuncture Wars** Prof. G Kumaraswamy Rao, Dr R Sreehari Rao DRDO Bhavan,Ministry of Defence, New Delhi, India	10:30 to 10:50 Hrs
	015R012	**Robustness of Search,Tracking, Guidance and Command Links of a Tactical Short Range Surface to Air Missile in a Severe Jamming Environment** Prof G Kumaraswamy Rao, Dr R Sreehari Rao DRDO Bhavan,Ministry of Defence, New Delhi, India	10:50 to 11:10 Hrs
Tea : 11:00 to 11:30 Hrs			
Session 9 **Chairman :** Prof Vinay Joseph IISc, Bangalore **Co Chairman :** Dr M Lakshminarayana Scientist, DLRL, DRDO **Duration :** **11:30 to 13:10 Hrs**		**EW ANTENNAS & ACTIVE PHASED ARRAY SYSTEMS – I**	
	074R076	**An Ultra Wideband Wide Beam Stripline Fed Vivaldi Antenna for Active Phased Array** Priya Suresh N, Saurabh Shukla, Apurv Mittal Defence Avionics Research Establishment, Bangalore, India	11:30 to 11:50 Hrs
	022R036	**Linear Array Antenna with Broadband Inline Transition - a Novel Design Approach for Multi-threat Jamming Application** M Balachary, H Sudhir, Pranab Kumar Thandar, M Bharath Jyothi Defence Electronics Research Laboratory, Hyderabad, India	11:50 to 12:10 Hrs
	075R077	**High Performance Multioctave Band Widebeam Active Phased Array for ECM** Priya Suresh N, Saurabh Shukla Defence Avionics Research Establishment, Bangalore, India	12:10 to 12:30 Hrs
	066R002	**Spherical Near Field Based Thermal Testing of Small Antennas** L J Foged, A Giacomini, R Morbidini, U Shemer Microwave Vision Group, Israel	12:30 to 12:50 Hrs
	027R033	**Compact and Broadband Omni Directional Antenna for EW Applications** T. Khumanthem, C.Sairam, S.D.Ahirwar, Sheilu Singh, M.Balachary Defence Electronics Research Laboratory, Hyderabad, India	12:50 to 13:10 Hrs
Lunch : 13:00 to 14:00 Hrs			
Invited Talk 3 **J N Tata Auditorium**		**Electronic Warfare Capability Innovation - Conceptual Framework of The Italian Air Force** **By Col . Giuseppe SGAMBA Commander , Italian Air Force**	14:00 to 14:30 Hrs
Session 12 **Chairman :** Davide Cannone System Analyst, Elettronica S.p.A Italy **Co Chairman :** O K Singh Scientist, DLRL, DRDO **Duration :** **14:30 to 16:10 Hrs**		**EW RECEIVERS AND RF SUB SYSTEMS - II**	
	047R019	**Effect of SNR on Parameters Measurement by an EW Receiver – A Mathematical Analysis** Sagnik Biswas, Prashant Tripathi, N.Seetharamaiah Defence Electronics Research Laboratory, Hyderabad, India	14:30 to 14:50 Hrs
	001R004	**A Novel Approach to Design a Wide Stopband Low Pass Filter in Suspended Substrate Stripline – Microstrip-line Based Mixed substrate topology** Mahadev Sarkar, Shantha Kumar L, BEL, Bangalore, India	14:50 to 15:10 Hrs
	084R046	**Wide Band Quasi-Active Limiter Design** Chandu Sirimalla, Rick Cory Aeroflex Metelics Inc, Londonderry, NH, USA	15:10 to 15:30 Hrs
	039R062	**Novel MM Wave Channelized Receiver Front End for ESM Applications** Y Hemalatha, Manish Mendhe, B Naresh Kumar, Ritesh Kumar, P Raghavendra Rao Defence Electronics Research Laboratory, Hyderabad, India	15:30 to 15:50 Hrs
	037R064	**Design & Development Of mm Wave Down Converter** V Ramasankaram, M K Das, J Usha Rani, Y Vijaya Lakshmi, Praveen Mandrupkar Defence Electronics Research Laboratory, Hyderabad, India	15:50 to 16:10 Hrs
Tea: 16:00 to 16:30 Hrs			

Session 15		**EW ANTENNAS & ACTIVE PHASED ARRAY SYSTEMS – II**	
Chairman : S P Dash Director, DLRL, DRDO **Co Chairman :** R Rama Rao Scientist, DLRL, DRDO **Duration :** **16:30 to 18:10 Hrs**	019R034	**High Strength Multi-Octave Band Radome for High Accuracy Direction Finding System for Underwater Platforms** M Chakravarthy, M Balachary, P Sowmya , Dr Lachiram Defence Electronics Research Laboratory, Hyderabad, India	16:30 to 16:50 Hrs
	028R035	**Design of Broadband HF Monopole Antenna** Sheilu singh, C.Sairam, S.D.Ahirwar, T. Khumanthem, M.Balachary Defence Electronics Research Laboratory, Hyderabad, India	16:50 to 17:10 Hrs
	050R070	**Radome for Blade Dipole Antenna Radome for Unmanned Aerial Vehicle Applications** Gopal, C Satyanarayana, CVH Prasad Defence Electronics Research Laboratory, Hyderabad, India	17:10 to 17:30 Hrs
	031R032	**Constant Beam Width Horn Antenna for Millimeter Wave Amplitude Comparison DF System** M Balachary, K. Bhramaramba, B Rama Krishn Defence Electronics Research Laboratory, Hyderabad, India	17:30 to 17:50 Hrs
	038R057	**Development of ESM Antenna Head Unit for Underwater Application** E S Suraj, Dr Lachiram, Cmde Ranjit Singh, T N Yadgiri Rao Defence Electronics Research Laboratory, Hyderabad, India	17:50 to 18:10 Hrs

Technical Sessions on 23 Feb 2012 — Venue: Seminar Hall A

Invited Talk 2 **J N Tata Auditorium**		**The Strategic Impact of MilSatComs on Electronic Warfare** By Asif Anwar, Strategy Analytics Ltd., UK	**09:00 to 09:30 Hrs**
Session 7		**EW/EO THREAT SIMULATORS AND EW TESTING/EVALUATION - I**	
Chairman: H V Srinivasa Rao Director, ISSA, DRDO **Co Chairman :** Raghuram Aithal AGM, BEL **Duration:** **09:30 to 10:50 Hrs**	002R005	**ECM/Radar Target Generation in Hardware-in-the Loop Applications** Dr Robert S Andrews EW Simulation Technology Ltd (EWST), UK	09:30 to 09:50 Hrs
	072R073	**Air Electronic Warfare Ranges** Wynne Davies Selex Galileo, UK	09:50 to 10:10 Hrs
	010R010	**Design of a Generic COTS Jammer** John Bednarz, Bimalkhedkar S, Wg Cdr MK Bapu (Retd) EWAS Technologies Pvt Ltd, Bangalore, India	10:10 to 10:30 Hrs
	077R---	**Implementation of a Mobile EW Simulator for Test and Evaluation of Airborne Self Protection Systems** James Rose Ultra Electronics TCS Inc., USA	10:30 to 10:50 Hrs
Tea : 11:00 to 11:30 Hrs			
Session 10		**EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – I**	
Chairman: S Varadarajan Director, LRDE, DRDO **Co Chairman :** D D Sharma Scientist, DLRL, DRDO **Duration:** **11:30 to 13:10 Hrs**	054R022	**An Effective WAM Based De-Interleaving Technique for High Pulse Density and Frequency Agile Radars** N Archana Vitthal, A Sridevi, MS Vijaya Kumar Bharat Electronics Limited, Hyderabad, India	11:30 to 11:50 Hrs
	012R058	**A Novel Scheme for Radar Emitter Classification and Identification** K. Radhakrishna, B.Babulal Defence Electronics Research Laboratory, Hyderabad, India	11:50 to 12:10 Hrs
	026R060	**Configurable Pulse Deinterleaving Technique for Handling of Complex Radars with Multi-Parameter Agilities** M Srinivasa Seshachary, M.M.K.P.S.S.Sriram Sista, K.Radha Krishna, V.Sobha Shankar Defence Electronics Research Laboratory, Hyderabad, India	12:10 to 12:30 Hrs
	041R018	**Digital Modulation Classification and Demodulation in the Presence of Frequency and Timing Offsets in Flat Fading Environments** V.Srinivas, Anantha Krishna Karthik, K.Bhaskar Kumar Omkar Kothekar, G.Raghavaiah Defence Electronics Research Laboratory, Hyderabad, India	12:30 to 12:50 Hrs
	030R059	**An Efficient Radar Emitter Deinterleaving Technique Based on Fuzzy ART and Kalman Filter** B.Babulal, K Radhakrishna, V Sobha Shankar Defence Electronics Research Laboratory, Hyderabad, India	12:50 to 13:10 Hrs
Lunch: 13:00 to 14:00 Hrs			
Invited Talk 3 **J N Tata Auditorium**		**Electronic Warfare Capability Innovation - Conceptual Framework of The Italian Air Force, By Col . Giuseppe SGAMBA Commander , Italian Air Force**	14:00 to 14:30 Hrs
Session 13		**EW/EO THREAT SIMULATORS AND EW TESTING/EVALUATION - II**	
Chairman: Dr Robert S Andrews Commercial Director	007R029	**Integrated Suite of Tools for Management of Radar Electronic Warfare Databases** Laurent Bernoville, Jean-Francois Laneyrie, Jacques Saget THALES Systemes Aeroportes, France	14:30 to 14:50 Hrs

EWST, UK **Co Chairman :** Philip Jacob GM, BEL **Duration:** **14:30 to 15:50 Hrs**	036R053	**Testing and Flight Evaluation of Radar Warning Receiver (RWR) System for Tejas Aircraft** Riya George, D.Darsan, Baldev Akhande, NNSSRK Prasad Aeronautical Development Agency (ADA), Bangalore	14:50 to 15:10 Hrs
	076R049	**Testing & Evaluation of Submarine borne ES Systems - Automated Approach** VRC Prasad, Ch LBS Sarma, Cmde Ranjit Singh and T N Yadgiri Rao Defence Electronics Research Laboratory, Hyderabad, India	15:10 to 15:30 Hrs
	090R083	**C-MUSIC™ - A Fiber Laser Based DIRCM System for Commercial Jet Aircraft** Andrew Lovett, Senior Director Elbit Systems Electro-optics, Elop Rehovot, Israel	15:30 to 15:50 Hrs
Tea: 16:00 to 16:30 Hrs			
Session 16 **Chairman:** G Boopathy Former Director DLRL, DRDO **Co Chairman :** R V Hara Prasad Scientist, DLRL, DRDO **Duration:** **16:30 to 18:10 Hrs**		**EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – II**	
	003R045	**Genetic Algorithm Based Threat Avoidance Trajectory for Unmanned Aerial Systems** M S Chandramouli Aeronautical Development Agency (ADA), Bangalore, India	16:30 to 16:50 Hrs
	059R043	**ES System Performance Under Pulse-On-Pulse Situations** Hemant Paranjape, S Sarala, H Suma, Dr K Maheswara Reddy Defence Avionics Research Establishment, Bangalore, India	16:50 to 17:10 Hrs
	055R023	**Digital Receiver as an ESM Receiver and Fingerprinting System** B Vinatha, B Renuka, PS Sai Pavan Bharat Electronics Limited, Hyderabad, India	17:10 to 17:30 Hrs
	083R081	**Multibit Digital Receiver Based on FPGA for Real Time Pulse Detection and Parameter Measurement for EW** Priya Suresh N, Abhijit Kulkarni, Vivek Mani Tiwari, Vikas Akalwadi, Sudipto Patra Defence Avionics Research Establishment, Bangalore, India	17:30 to 17:50 Hrs
	020R065	**Finger Printing Techniques for Complex Radars** OK Singh, N Sarada, T Srikanth, T Ravi Kishore Defence Electronics Research Laboratory, Hyderabad, India	17:50 to 18:10 Hrs

Technical Sessions on 23 Feb 2012 — Venue: Seminar Hall B

Invited Talk 2 **J N Tata Auditorium**		**The Strategic Impact of MilSatComs on Electronic Warfare** By Asif Anwar, Strategy Analytics Ltd., UK	**09:00 to 09:30** Hrs
Session 8 **Chairman:** Eyal Danan Vice President ELTA Systems, Israel **Co Chairman :** G Raghavaiah Scientist, DLRL, DRDO **Duration:** **09:30 to 10:50**		**COMMUNICATION EW - I**	
	062R025	**The Wide Side of COMINT: End to End Exploitation of Microwave Links** Shmuel Dahan, Amir Shlomo ELTA Systems Ltd, Israel	09:30 to 09:50 Hrs
	032R016	**Universal Signal Processing Architecture for Communication Intelligence** Gaurav Jyoti Phukan, Nalini Matturthi, Arun Kumar HH Bharat Electronics Limited (BEL), Bangalore, India	09:50 to 1010 Hrs
	017R014	**Software Reconfigurable Multiband Receiver for Communication EW Systems** Gaurav Lohiya, P S Prasad, G Raghavaiah Defence Electronics Research Laboratory, Hyderabad, India	1010 to 10:30 Hrs
	021R061	**Platform Constraints for Direction Finding of Communication Signals** Y Purushottam, Sanjay Pandav, K S C.Mouleswara Rao Defence Electronics Research Laboratory, Hyderabad, India	10:30 to 10:50 Hrs
Tea : 11:00 to 11:30 Hrs			
Session 11 **Chairman:** Wg Cdr (Retd) Wynne Davies Selex Galileo, UK **Co Chairman :** Philip Jacob GM, BEL **Duration:** **11:30 to 13:10 Hrs**		**COMMUNICATION EW - II**	
	013R011	**A Reconfigurable Test Bed for Communication EW Systems** S Krishna Prasad NSS Communications, Hyderabad, India	11:30 to 11:50 Hrs
	025R063	**Emerging trends in Detection and Location Fixing of Communication EW Signals** Y. Purushottam, G. Raghavaiah Defence Electronics Research Laboratory, Hyderabad, India	11:50 to 12:10 Hrs
	033R051	**Flexible ES Configurations for Frontline Naval Platforms** Cmde Ranjit Singh, VRC Prasad, TN Yadgiri Rao Defence Electronics Research Laboratory, Hyderabad, India	12:10 to 12:30 Hrs
	082R---	**Cognitive RF: A Paradigm Shift in Spectrum Utilization & Management** Vasu Chakravarthy,Air Force Research Laboratory – Sensors Directorate Wright Patterson AFB, Dayton, OH. USA	12:30 to 12:50 Hrs
	085R068	**A Versatile RF-Digital Baseband Generator for Applications in Communications** Ch. Arun Kumar,Sc C, M.V.Ravindra Kumar,Sc E, J. Manjula,Sc G, Nitesh Gupta, Vikas Akalwadi, Phaneendra T Defence Electronics Research Laboratory, Hyderabad, India CoreEL Technologies (I) Pvt. Ltd, India	12:50 to 13:10 Hrs
Lunch: 13:00 to 14:00 Hrs			
Invited Talk 3 **J N Tata Auditorium**		**Electronic Warfare Capability Innovation - Conceptual Framework of The Italian Air Force, By Col . Giuseppe SGAMBA Commander , Italian Air Force**	14:00 to 14:30 Hrs

Session 14		**EW SYSTEMS INSTALLATION, MAINTENANCE, SOFTWARE ENGINEERING AND MODELLING/SIMULATION - I**	
Chairman: P M Sounder Rajan Director, DARE, DRDO **Co Chairman :** Raghuram Aithal AGM, BEL **Duration:** **14:30 to 15:50 Hrs**	067R047	**Model Based System Engineering/Design (MBSE/D) Approach for Smarter EW System Development** R Pitchammal, S Sarala, Vidhya Selvakumar Defence Avionics Research Establishment, Bangalore, India	14:30 to 14:50 Hrs
	057R024	**Electronic Warfare Modeling and Simulation** B Srinivas Reddy Bharat Electronics Limited, Hyderabad, India	14:50 to 15:10 Hrs
	068R052	**Changing Paradigms of EW Operations Onboard Naval Warships** Commander (Retd) K Ramesh dB Systems Inc, India	15:10 to 15:30 Hrs
	052R020	**Electronic Warfare Systems – Installation Issues** Ch Viswanadham Bharat Electronics Limited, Hyderabad, India	15:30 to 15:50 Hrs
Tea: 16:00 to 16:30 Hrs			

Technical Sessions on 24 Feb 2012 — Venue: J N Tata Auditorium

Invited Talk 4 **J N Tata Auditorium**		**Multifunction Radio Frequency Systems with Shared Resources and Apertures : The New Paradigm for Future Radar and EW Systems** By Dr Andrea De Martino, Elettronica, Italy	**09:00 to 09:30 Hrs**
Session 17		**ESM/ELINT AND EO BASED EW SYSTEMS**	
Chairman: Dr Andrea De Martino Chief Technical Officer, Elettronica, Italy **Co Chairman :** G Raghavaiah Scientist, DLRL, DRDO **Duration:** **09:30 to 11:10 Hrs**	023R066	**High Performance ELINT Payloads for Medium / Large Size UAV & Aerostat Platforms** R V Hara Prasad, T N Yadgiri Rao Defence Electronics Research Laboratory, Hyderabad, India	09:30 to 09:50 Hrs
	048R040	**ESM/ELINT System for AEW&C Platform** S D M Rao, R Rama Rao, T N Yadgiri Rao Defence Electronics Research Laboratory, Hyderabad, India	09:50 to 10:10 Hrs
	006R007	**Expendable CM Effectiveness against Imaging IR-Guided Threats** C R Viau Tactical Technologies Inc, Canada	10:10 to 10:30 Hrs
	061R---	**Dual Band Seeker Electro-Optical Bench** Keith Dalley ESL Defence Limited, UK	10:30 to 10:50 Hrs
	064R027	**DIRCM Airborne Protection Against IR Guided Missiles** Pedro Osma, Jesús Hortal, Jose Miguel Pascual Defence Systems, Indra, SPAIN	10:50 to 11:10 Hrs
Tea: 11:00 to 11:30 Hrs			

Technical Sessions on 24 Feb 2012 — Venue: Seminar Hall A

Invited Talk 4 **J N Tata Auditorium**		**Multifunction Radio Frequency Systems with Shared Resources and Apertures : The New Paradigm for Future Radar and EW Systems** By Dr Andrea De Martino, Elettronica, Italy	**09:00 to 09:30 Hrs**
Session 18		**EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – II**	
Chairman: Commander Col. Giuseppe Sgamba Italian Air Force, Italy **Co Chairman :** O K Singh Scientist, DLRL, DRDO **Duration:** **09:30 to 11:10 Hrs**	024R071	**FPGA Based Digital Receiver Board with Efficient FFT Kernel Implementation for Radar ESM Applications** Ananya Mishra, Rajesh Gollapudi, N. Srinivas Rao Defence Electronics Research Laboratory, Hyderabad, India	09:30 to 09:50 Hrs
	029R015	**An Ultra High Speed Signal Interception FPGA Core for FH Monitoring and Follow on Jamming** S Krishna Prasad NSS Communications, Hyderabad, India	09:50 to 10:10 Hrs
	043R041	**LPI Radar Signal Detection, Identification & Classification Using Digital Receiver** VVSRN Raju, R Pavan Kumar, AK Singh, Dr K Subba Rao Defence Electronics Research Laboratory, Hyderabad, India	10:10 to 10:30 Hrs
	070R075	**Implementation of Fine Frequency Measurement on Windowed FFT Outputs Using Spectral Estimation Method** Abhijit Kulkarni, Dr K Maheshwara Reddy Defence Avionics Research Establishment, Bangalore, India	10:30 to 10:50 Hrs
	044R042	**Quad Digital Receiver for Radar EW Application** Gautam Kumar, Deepti Agrawal, J Vijayalaxmi, AK Singh Defence Electronics Research Laboratory, Hyderabad, India	10:50 to 11:10 Hrs
Tea: 11:00 to 11:30 Hrs			

Technical Sessions on 24 Feb 2012 — Venue: Seminar Hall B

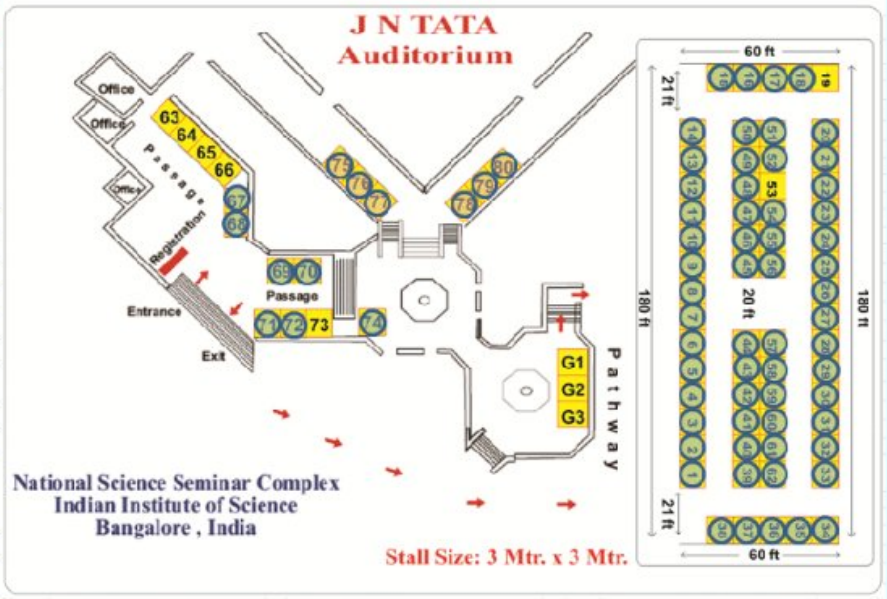
Invited Talk 4 **J N Tata Auditorium**		**Multifunction Radio Frequency Systems with Shared Resources and Apertures : The New Paradigm for Future Radar and EW Systems** By Dr Andrea De Martino, Elettronica, Italy	**09:00 to 09:30 Hrs**
Session 19 **Chairman:** Col (Retd) HS Shankar CEO, ADTL, India **Co Chairman :** V B Athmaram ADTL, India **Duration:** **09:30 to 10:50 Hrs**		**EW SYSTEMS INSTALLATION, MAINTENANCE, SOFTWARE ENGINEERING AND MODELLING/SIMULATION - II**	
	065R044	**Challenges in Integration of EW Systems on Military Aircraft** BK Malik, SK Garg Hindustan Aeronautics Limited, Nasik, India	09:30 to 09:50 Hrs
	053R021	**EW Systems – Life Time Maintenance Support** Ch Viswanadham Bharat Electronics Limited, Hyderabad, India	09:50 to 10:10 Hrs
	051R030	**Product Design of Flight Control Computer Using DFSS Tools** A Karthikeyan Bharat Electronics Limited, Bangalore, India	10:10 to 10:30 Hrs
	088R079	**FPGA Level In-Target Testing for DO-254 Compliance** Louie De Luna , Zibi Zalewski Aldec, Corporate Circle Henderson, NV, U.S.A	10:30 to 10:50 Hrs
Tea: 11:00 to 11:30 Hrs			

Panel Discussion and Closing Ceremony on 24 Feb 2012 — Venue: J N Tata Auditorium

11:45 to 12:30 Hrs	**Panel Discussion : Trends in EW & IO Technologies and Collaborative Development** ***Panel :*** Representatives DRDO, BEL/Defence PSUs, Integrated defence Staff , AOC India Chapter and Private Industry ***Open to :*** All the Conference/Tutorial Delegates and Exhibitors
12:30 to 13:00 Hrs	**Closing Function** Distribution of Certificates, Discussions on Feedback, Future Course of EWCI and AOC India
13:00 to 14:00 Hrs	**Lunch**
16:00 Hrs	**Closing of Technical Exhibition**

EWCI 2012: Exhibition Layout and Sponsors

Stall	Booked to
1	Elettronica, Italy
2	Elettronica, Italy
3	Electronica, Italy
4	ADTL, India
5	ADTL, India
6	eMagin Corporation, USA
7	RADIALL, India
8	ICOMM, India
9	Continental Converters, India
10	SATCOM Technologies Pvt Ltd
11	MerlinHawk, India
12	e2v, UK
13	EWAS Technologies, India
14	MC-CM, Canada
15	CoreEl Technologies, India
16	CoreEl Technologies, India
17	MA-COM, India
18	Rosen Berger
19	
20	Texas Instruments, India
21	Axis Aerospace Technologies, India
22	UURMI Systems Pvt Ltd, India
23	Elisra
24	SAAB, India
25	SM Creative, India
26	SM Creative, India
27	CPE Italia
28	Amphenol, India
29	Vrinda Technologies, India
30	L-3 TRL Technology, USA
31	Selex Galileo, UK
32	Selex Galileo, UK
33	Selex Galileo, UK
34	Agilent Technologies, India
35	Agilent Technologies, India
36	IAI, Israel
37	IAI, Israel
38	IAI, Israel
39	dB Control, USA
40	Teledyne Renolds, USA
41	ESL Defence, UK
42	ICON Design, India



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43	ALDEC, India	56	Teledyne Defence, UK	69	Astra Microwave, India	
44	ALDEC, India	57	ITT, USA	70	Astra Microwave, India	
45	Rohde & Schwarz, India	58	National Instruments, India	71	Tektronix, India	
46	Rohde & Schwarz, India	59	National Instruments, India	72	Tektronix, India	
47	TECSOL, India	60	Ultra telemus, Canada	73		
48	CST, India	61	L3-COM NARDA West, USA	74	Microwave Vision Group, Israel	
49	Tattva Embedded Solutions, India	62	Spur Microwave, India	75	BEL, India	
50	DIMIC Technologies, India	63		76	BEL, India	
51	DIMIC Technologies, India	64		77	BEL, India	
52	DIMIC Technologies, India	65		78	DRDO, India	
53		66		79	DRDO, India	
54	Entuple Technologies Pvt. Ltd	67	RTTS, India	80	DRDO, India	
55	Hittite, India	68	RTTS, India			

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