CRL Technical Symposium – 2022, BAE (NALANDA)

Programme Schedule: 18th & 19th August 2022

Day 1: 18.08.2022 (Thursday)		
09:00 - 09:30	Symposium Registration – Authors and Delegates	
09:30 - 11:00	**Symposium Inauguration - Sir M Visvesvaraya Auditorium** **Address by Directors and CMD BEL, Key Note Address by Dr. B K Das DG(ECS) DRDO**	
11:00 - 11:30	HIGH TEA	
Hall & Time	**Dr. A P J Abdul Kalam Hall** **(Track – 1)**	**Sir C.V. Raman Hall** **(Track – 2)**	**Prof. Satish Dhawan Hall** **(Track – 3)**
11:30 - 16:55	**Session-1 (Communication)** **Chair: Shri P SAMPATH KUMAR, CTO-COMM** **Co-chair: Shri RAJENDRA SAMBRANI B, AGM, D & E- MCE**	**Session-2 (RF and Microwave)** **Chair: Shri HARI KUMAR R, GM - TP** **Co-chair: Smt. KALYANI MURTHY, AGM, PDIC**	**Session-3 (Electro Optics)** **Chair: Smt. VANISREE V,CTO-EW & PHOTONICS** **Co-chair: Shri PRAKASH S P, AGM – PDIC**
11:30 - 11:50	Kalman Filter Based Data Fusion for MIMO DSSS based CDMA (4), *Manjukrishna, MILCOM*	Design and Development of 100W GaN based S Band DTRM (50), *NIRMAL MUNDRA, RADAR*	Development of n-on-p type Quadrant Photo Detector with increased Charge Collection Efficiency (36), *Arijit Das, COMP*
11:50 - 12:10	Co-Operative Time Synchronization for a TDMA-Based Multi-Hop Ad-hoc Tactical Network (12), *Shivanand Mishra, COE-CM*	Design of Broadband High Efficiency Power Amplifier using Continuous Inverse Modes(108), *Kushan Chakraborty, CRL-BG*	Triple band antireflection coating on ZnS windows for multi-channel electro optic sensors. (38), *Bojja Sridhar, MC*
12:10 - 12:30	Inter-Numerology Interference in 5G New Radio Analysis for Time-Varying Fading Channels (42), *Sreedhar Tenneti, CRLBG*	Design of Low SWaPUltra low phase noise Multi-source generator for X-Band Doppler Weather Radar(135), *Vipin Kumar H, PDIC*	Theoretical anatomization of In-phase High Power Lethal Beam as Warfare Weapon(172), *Debasish Mishra, COE-EL*
12:30 - 12:50	Long Range Mesh Communication (120), *MAITREYEE SINHA, CRL-BG*	Design of 70W GaN Based Power Efficient Amplifier for Software Defined Radio Applications (155), *Joydeb Mandal, CRL-BG*	1 kW Narrow-linewidth CW Fiber Laser Source for Spectral Beam Combining (86), *Thejna Ros Joseph, CRL-BG*
13:00 - 14:00	LUNCH	
14:00 - 15:00	**Invited talk by Dr. Ashok Rao, Director, NIE-MC - Sir M Visvesvaraya Auditorium**	
15:00 - 15:20	Implementation of Flex Low-Phy Modules in ORAN based 5G NR Radio Unit with Hybrid Beam-forming (147), *Hari Krishna, CRL-BG*	S-Band Power Amplifier with Low EVM for Datalink Avionics Applications (180), *Devendra kirad, PDIC*	Optical Design for External Fusion Night Vision Device (192), *Krishnendu Roy, COE-EL*

Time			
15:20 - 15:40	SoC Based ADS-B Receiver (123), *MANASI SEN, PDIC*	C band high linearity gain block MMIC Amplifier using GaAs pHEMT process(35), *konderu satish kumar, PDIC*	Binary Measurement Matrix Construction for Compressive Sensing of Thermal Images (44), *Dr. Gayatri Parthasarathy, CRLBG*
15:40 - 15:55	TEA BREAK		
15:55 - 16:15	An Efficient Simulation Platform for DVB-S2 based Satellite System (2), *Deepika Revankar Manjunath, PDIC*	All Electric Two Axis Stabilization System for Ship Borne Radar (10), *Amarnath Yadav, ANTENNA*	Image Super-resolution using controlled microscanning (98), *Karthick D, CRL-BG*
16:15 - 16:35	High Speed Data Dissemination in SATCOM Network (24), *Manmohan Singh, SCCS*	A High Bandwidth X Band Mono-Pulse comparator for Tracking RADAR.(18), *ANILKUMAR HL, MR*	Design of Compact Teleconverter Lens for Block Cameras (79*), ADEPU RAJESH, MC*
16:35 - 16:55	A Method and System for Time Synchronization In Nano Seconds Order, by Multicore Satellite Receiver Architecture (94), *A Rakesh Kumar, CRL-BG*	Material selection and Hail Impact Analysis of Airborne Radome (165), *Ajith Kumar K A, PDIC*	Indigenous Development Dual Channel Drainage Intrusion Detection System (139), Renu Varshney, *COE-EL*

Day 2: 19.08.2022 (Friday)			
08:30 - 09:00	Symposium Registration – Authors and Delegates		
09:00 - 09:30	**Invited Talk by Dr. Ajit T Kalghatgi, Former Director (R &D), BEL - Sir M Visvesvaraya Auditorium**		
09:30 - 10:00	**Invited Talk by Dr. S D Sudarsan, Executive Director, C-DAC - Sir M Visvesvaraya Auditorium**		
Hall & Time	**Dr. A P J Abdul Kalam Hall (Track – 1)**	**Sir C.V. Raman Hall (Track – 2)**	**Prof. Satish Dhawan Hall (Track – 3)**
10:00 - 13:15	**Session-4 (Network) Chair: Shri MANOJ JAIN, GM(EW&A) Co-chair: Shri SAMEER KUMAR VERMA, AGM, SC & US**	**Session-5 (AI & Image Processing) Chair: Shri ANOOP KUMAR RAI, CS - CRLGAD Co-chair: Shri KODANDARAMA K, AGM,BSTC**	**Session-6 (RADAR & Weapon System) Chair: Shri SURESH KUMAR K V, GM - PDIC Co-chair: Smt. DHARANI B, AGM - D & E NS2**
10:00 - 10:20	Comparative Evaluation of Software Architecture Design and Development in Network Centric Combat Systems - Monolith vs. Components (80), *Sarvesh Kumar Chaudhary, CRL-GAD*	Passive Ranging using Cascading of AI Detection Models (158), *Subhasis Mandal, CRL-BG*	Multiple Target Detection and Tracking in Infrared Spectrum for Anti-Drone Systems (30) *Varanasi Krishna Priya, CRL-BG*

10:20 - 10:40	Adaptive Polling Algorithm for Enterprise Network (20), *Vandana, CRL-GAD*	Manufacturing Defect Detection in Assembled PCBs using Deep Learning (45), *Amit Jain*, RADAR	Augmented Reality Application in Maintenance, Repair, Operation & Training for Sonar System (27), *Kotresh Kumar DS, NS*
10:40 - 11:00	A Method for OTA Update in IoT Devices and Embedded Systems Using RAUC and Hawkbit framework (148), *Surabhi Ashok Babu, CRL-BG*	Enemy Aircraft Activity and Plan Recognition (136), *Deepak Chaudhary, CRL-GAD*	Fast and Pre-emeptive Scanning Method for Narrow Band ESM Receiver Using Zynq Platform (31), *Faiz Ahmed, HYD*
11:00 - 11:15	TEA BREAK		
11:15 - 11:35	Optimizing Convolutional Neural Network for efficient recognition of Handwritten Devanagari Characters (97), *Akash Majumdar, CRL-GAD*	An Ensemble method in NLP using Contextual Embeddings and Independently Recurrent Neural Networks for Defense Applications (85) *Mani Wadhwa, CRL-GAD*	Countermeasures for Anti-Tank Missiles (163), *Abhishek Tiwari, PDIC*
11:35 - 11:55	Optimizing Data Flow using Flow Controller (89), *Kamlendra Pratap Singh, NCS*	Embedded Video Processing Solution for RUSTOM-II UAV(157), *Santosh Kumar, CRL-BG*	Target Classification for Akash Missile System(170), *Anju John, CRL-BG*
11:55 - 12:15	The Method for Implementation of Load Balancer and High Availability in Private Cloud Environment (107), *Manjunatha D R, CRL-BG*	ML Based Data Association using Bi-LSTM Networks (182), *Yedhu Shali, CRL-BG*	Performance Analysis on a Real Time FM based Passive Bistatic Radar Experimental Setup(68), *D. Ranganath, CRL-BG*
12:15 - 12:35	Design & Development of Timing Generation Unit for synchronous operation of four-walled Multi-Function Radar (51), *Darshan L, CRL-BG*	Impact of Learning Rate Schedulers on Deep Neural Network (187), *Shashi Shekhar, CRL-GAD*	Analysis of Monopulse Processing in Digital Array Radar Receivers (99), *Ujjwala Mishra, CRL-BG*
12:35 - 12:55	Improving Vehicular Handover Time Using Make Before Break Mechanism (90), *Kolla Pradeepthi, CRL-BG*	Pix2Pix GAN Image Synthesis to Detect Electric Vehicle License Plate (142), *Kalpana.A, CRL-BG*	Dual Band Chirp Signal Generation For Lesser Range Side Lobes(169), *Vikas Kumar, PDIC*
12:55 - 13:15	Remote software update for FPGA based systems (103), *Anand Patil, SC&US*	CamFeedAnalyser AResNet Based Tool for E2E Spatio-Temporal Inconsistency Detection in Videos(133), *Jaskaranpreet Kaur, CRL-GAD*	LIF based Real Time Biological Agent Detection System (173), *PANKAJ R. PACHARNE, PN*
13:15 - 14:00	LUNCH		
14:00 - 14:45	**Invited Talk by Prof M. V. Kartikeyan, IIT Tirupati - Sir M Visvesvaraya Auditorium**		

14:45 - 18:00	Session-7 (RADAR Signal & Data Processing) Chair: Smt. SARALA B, CTO-R&WS Co-chair: Shri MALARKANNAN G, AGM, MR	Session-8 (Embedded Systems) Chair: Smt. DURGA G K, GM - BSTC Co-chair: Smt. HEMALATHA B J, AGM, COE-R&WS	Session-9 (Microwave components) Chair: Shri NARESH KUMAR S, GM-COMP Co-chair: Shri ANILSOGI K AGM – EW&A
14:45 – 15:05	Study of Elevation Estimation Techniques Based on Polynomial Regression in 3D Surveillance Radar (5), *Ram Pravesh, RADAR*	BEL Designed Potable Water Solution for Mobile Troops (32), *SOUMITRA BHAUMIK, NAMU*	Design of Programmable Wide Band High Power Tunable Filter Using Switched Binary Array Capacitors (82), *PRAVEEN GUNDETI, CRL-BG*
15:05 - 15:25	AMR-based Cooperative Track Maintenance in MST Surveillance System (14), *Mali Dasharathbhai Dahyalal, CRL-BG*	Design and Implementation of a RV64IM Extension BRISC processor (49), *Sharath H S, CRL-BG*	I-Style Waveguide Rotary Joint for Mechanically Scanned Radars in S-Band (87), *AKHIL GUPTA, Antenna*
15:25 - 15:45	Automatic Scheme to obtain elevation angle from elevation channel and sub-channel number for 3D Surveillance Radar (62) *Grandhik Karthik, CRL-BG*	Design & implementation of High Power AC-DC Power Supply for Military Electric Vehicles(81), *Saurab T M, PDIC*	Three-Way, Equal-Phase High Power Divider & Combiner with a Novel method of improving Isolation. (102), *Pankaj Gupta, PDIC*
15:45 - 16:00	HIGH TEA		
16:00 - 16:20	Frequency Estimation from Undersampled Waveforms using Robust Chiense Remainder Theorem (151), *Dibyakanti Mahapatra,CRL-BG*	Development of dual redundant two channel Power Supply Unit for Radar applications (96), *Navneet Kumar Diwakar, PDIC*	Design and Optimization of Higher Order Waveguide Duplexer for SOTM (74), *Sayyad Shahwaz Ali, CRL-BG*
16:20 - 16:40	Radar Target Image Formation for Classification using High Frequency High Resolution Radar Signature(37), *Sherry Gomez, CRL-BG*	Methodology for Characterization of Differential Airway Flow Sensor Assembly(110)	Design of High-Power Harmonic Rejection Filter for SDR Applications (141), *Anand M. Tripathi, CRL-BG*
16:40 - 17:00	True Time Delay Filters for Phased Array Radars (43), *K. REVATI SURESH, CRL-BG*	System and Method for MIL-STD-1553B to Ethernet Data Conversion (138), *Yatam Venkata Krishna Reddy, PDIC*	Analysis of a Multi-Octave Co-Axial Balun Cascaded with Harmonic Termination (8), *S Indumathi, CRL-BG*
17:00 - 17:20	A Case Study on Transmit Beamforming in MIMO Phased Array Radar (64), *Akhil Johnson, CRL-BG*	Investigation of bump transmissibility in Suspension system for Efficient UGV Control(140), *Anurag Arjunan, PDIC*	A 1-18 GHz Single Supply 5-Bit Low Power Consumption MMIC Digital Attenuator (41), *Sari.S, PDIC*
17:20 - 17:40	A real time state of art Multi channel computing system for radar signal processing (143), *Kuchipudi Rathna Prasad, CRL-BG*	Algorithmic Optimization of High Resolution Hardware Timers in Linux OS (161), *Sreenivas S, CRL-BG*	DPLL Based Reflection Coefficient Estimation for Antenna Tuning Unit (61), *Prashanth Sujir, MILCOM*
17:40 - 18:00	Low Probability of Intercept Radar for Drone Detection using FMCW Technique (181), *Jeevan Shastry D G, MR*		Design and Realization of Gysel Power Divider/ Combiner for High Power Handling in C Band (73), *Manish Mishra, PDIC*