

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

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

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	<b>Session-4 (Network)</b> Chair: Shri MANOJ JAIN, GM(EW&A) Co-chair: Shri SAMEER KUMAR VERMA, AGM, SC & US	<b>Session-5 (AI &amp; Image Processing)</b> Chair: Shri ANOOP KUMAR RAI, CS - CRLGAD Co-chair: Shri KODANDARAMA K, AGM,BSTC	<b>Session-6 (RADAR &amp; Weapon System)</b> 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), <i>Sarvesh Kumar Chaudhary, CRL-GAD</i>	Passive Ranging using Cascading of AI Detection Models (158), <i>Subhasis Mandal, CRL-BG</i>	Multiple Target Detection and Tracking in Infrared Spectrum for Anti-Drone Systems (30) <i>Varanasi Krishna Priya, CRL-BG</i>

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10:20 - 10:40	Adaptive Polling Algorithm for Enterprise Network (20), <i>Vandana, CRL-GAD</i>	Manufacturing Defect Detection in Assembled PCBs using Deep Learning (45), <i>Amit Jain, RADAR</i>	Augmented Reality Application in Maintenance, Repair, Operation & Training for Sonar System (27), <i>Kotresh Kumar DS, NS</i>
10:40 - 11:00	A Method for OTA Update in IoT Devices and Embedded Systems Using RAUC and Hawkbit framework (148), <i>Surabhi Ashok Babu, CRL-BG</i>	Enemy Aircraft Activity and Plan Recognition (136), <i>Deepak Chaudhary, CRL-GAD</i>	Fast and Pre-emptive Scanning Method for Narrow Band ESM Receiver Using Zynq Platform (31), <i>Faiz Ahmed, HYD</i>
11:00 - 11:15	TEA BREAK		
11:15 - 11:35	Optimizing Convolutional Neural Network for efficient recognition of Handwritten Devanagari Characters (97), <i>Akash Majumdar, CRL-GAD</i>	An Ensemble method in NLP using Contextual Embeddings and Independently Recurrent Neural Networks for Defense Applications (85) <i>Mani Wadhwa, CRL-GAD</i>	Countermeasures for Anti-Tank Missiles (163), <i>Abhishek Tiwari, PDIC</i>
11:35 - 11:55	Optimizing Data Flow using Flow Controller (89), <i>Kamlendra Pratap Singh, NCS</i>	Embedded Video Processing Solution for RUSTOM-II UAV(157), <i>Santosh Kumar, CRL-BG</i>	Target Classification for Akash Missile System(170), <i>Anju John, CRL-BG</i>
11:55 - 12:15	The Method for Implementation of Load Balancer and High Availability in Private Cloud Environment (107), <i>Manjunatha D R, CRL-BG</i>	ML Based Data Association using Bi-LSTM Networks (182), <i>Yedhu Shali, CRL-BG</i>	Performance Analysis on a Real Time FM based Passive Bistatic Radar Experimental Setup(68), <i>D. Ranganath, CRL-BG</i>
12:15 - 12:35	Design & Development of Timing Generation Unit for synchronous operation of four-walled Multi-Function Radar (51), <i>Darshan L, CRL-BG</i>	Impact of Learning Rate Schedulers on Deep Neural Network (187), <i>Shashi Shekhar, CRL-GAD</i>	Analysis of Monopulse Processing in Digital Array Radar Receivers (99), <i>Ujjwala Mishra, CRL-BG</i>
12:35 - 12:55	Improving Vehicular Handover Time Using Make Before Break Mechanism (90), <i>Kolla Pradeepthi, CRL-BG</i>	Pix2Pix GAN Image Synthesis to Detect Electric Vehicle License Plate (142), <i>Kalpana.A, CRL-BG</i>	Dual Band Chirp Signal Generation For Lesser Range Side Lobes(169), <i>Vikas Kumar, PDIC</i>
12:55 - 13:15	Remote software update for FPGA based systems (103), <i>Anand Patil, SC&amp;US</i>	CamFeedAnalyser AResNet Based Tool for E2E Spatio-Temporal Inconsistency Detection in Videos(133), <i>Jaskaranpreet Kaur, CRL-GAD</i>	LIF based Real Time Biological Agent Detection System (173), <i>PANKAJ R. PACHARNE, PN</i>
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	<b>Session-7 (RADAR Signal &amp; Data Processing)</b> <b>Chair: Smt. SARALA B, CTO-R&amp;WS</b> <b>Co-chair: Shri MALARKANNAN G, AGM, MR</b>	<b>Session-8 (Embedded Systems)</b> <b>Chair: Smt. DURGA G K, GM - BSTC</b> <b>Co-chair: Smt. HEMALATHA B J, AGM, COE-R&amp;WS</b>	<b>Session-9 (Microwave components)</b> <b>Chair: Shri NARESH KUMAR S, GM-COMP</b> <b>Co-chair: Shri ANILSOGI K AGM – EW&amp;A</b>
14:45 – 15:05	Study of Elevation Estimation Techniques Based on Polynomial Regression in 3D Surveillance Radar (5), <i>Ram Pravesh, RADAR</i>	BEL Designed Potable Water Solution for Mobile Troops (32), <i>SOUMITRA BHAUMIK, NAMU</i>	Design of Programmable Wide Band High Power Tunable Filter Using Switched Binary Array Capacitors (82), <i>PRAVEEN GUNDETI, CRL-BG</i>
15:05 - 15:25	AMR-based Cooperative Track Maintenance in MST Surveillance System (14), <i>Mali Dasharathbhai Dahyalal, CRL-BG</i>	Design and Implementation of a RV64IM Extension BRISC processor (49), <i>Sharath H S, CRL-BG</i>	I-Style Waveguide Rotary Joint for Mechanically Scanned Radars in S-Band (87), <i>AKHIL GUPTA, Antenna</i>
15:25 - 15:45	Automatic Scheme to obtain elevation angle from elevation channel and sub-channel number for 3D Surveillance Radar (62) <i>Grandhik Karthik, CRL-BG</i>	Design & implementation of High Power AC-DC Power Supply for Military Electric Vehicles(81), <i>Saurab T M, PDIC</i>	Three-Way, Equal-Phase High Power Divider & Combiner with a Novel method of improving Isolation. (102), <i>Pankaj Gupta, PDIC</i>
15:45 - 16:00	HIGH TEA		
16:00 - 16:20	Frequency Estimation from Undersampled Waveforms using Robust Chiense Remainder Theorem (151), <i>Dibyakanti Mahapatra, CRL-BG</i>	Development of dual redundant two channel Power Supply Unit for Radar applications (96), <i>Navneet Kumar Diwakar, PDIC</i>	Design and Optimization of Higher Order Waveguide Duplexer for SOTM (74), <i>Sayyad Shahwaz Ali, CRL-BG</i>
16:20 - 16:40	Radar Target Image Formation for Classification using High Frequency High Resolution Radar Signature(37), <i>Sherry Gomez, CRL-BG</i>	Methodology for Characterization of Differential Airway Flow Sensor Assembly(110)	Design of High-Power Harmonic Rejection Filter for SDR Applications (141), <i>Anand M. Tripathi, CRL-BG</i>
16:40 - 17:00	True Time Delay Filters for Phased Array Radars (43), <i>K. REVATI SURESH, CRL-BG</i>	System and Method for MIL-STD-1553B to Ethernet Data Conversion (138), <i>Yatam Venkata Krishna Reddy, PDIC</i>	Analysis of a Multi-Octave Co-Axial Balun Cascaded with Harmonic Termination (8), <i>S Indumathi, CRL-BG</i>
17:00 - 17:20	A Case Study on Transmit Beamforming in MIMO Phased Array Radar (64), <i>Akhil Johnson, CRL-BG</i>	Investigation of bump transmissibility in Suspension system for Efficient UGV Control(140), <i>Anurag Arjunan, PDIC</i>	A 1-18 GHz Single Supply 5-Bit Low Power Consumption MMIC Digital Attenuator (41), <i>Sari.S, PDIC</i>
17:20 - 17:40	A real time state of art Multi channel computing system for radar signal processing (143), <i>Kuchipudi Rathna Prasad, CRL-BG</i>	Algorithmic Optimization of High Resolution Hardware Timers in Linux OS (161), <i>Sreenivas S, CRL-BG</i>	DPLL Based Reflection Coefficient Estimation for Antenna Tuning Unit (61), <i>Prashanth Sujir, MILCOM</i>
17:40 - 18:00	Low Probability of Intercept Radar for Drone Detection using FMCW Technique (181), <i>Jeevan Shastry D G, MR</i>		Design and Realization of Gysel Power Divider/Combiner for High Power Handling in C Band (73), <i>Manish Mishra, PDIC</i>