

**2009 NGAS Technology Forum
 “Demonstrating Advanced Capabilities
 For Next-Generation Systems”
 June 23-25, 2009
 Redondo Beach, CA**

Day 1

0700 - 0745 **Registration and Continental Breakfast – Aerospace Presentation Center (APC) / Tent Annex**

0745 - 0800 **Welcome – Mr. Barry D. Adams**
 Program Development Manager, Technology Development/Advanced Programs & Technology Division, NGAS

0800 - 0815 **Opening Remarks – Dr. Tom Romesser**
 Vice President, Technology Development/Advanced Programs & Technology Division and NGAS Chief Technology Officer

0815 - 0915 **Keynote Speaker – Mr. Douglas L. Bowers**
 Director, Propulsion Directorate, Air Force Research Laboratory

0915 - 1000 **Next Generation Aircraft Systems**
 Mr. Paul Meyer, Vice President & General Manager, Advanced Programs & Technology Division, NGAS

1000 - 1015 **Break**

1015 - 1200	Session 1A Room: 115A Network Systems 1 (UNCLASSIFIED) <ul style="list-style-type: none"> Architecture for Hosting Micro-Web Server within Embedded Applications Advanced Information Management System (AIMS) – Information to the Tactical Edge Data Distribution, Messaging and Caching at the Tactical Edge Future Approaches to EAL 6+ MLS Architectures for Embedded Platforms 	Session 1B Room: 115B Information Exploitation 1 (UNCLASSIFIED) <ul style="list-style-type: none"> Image Registration by Mutual Information (IRMI) Project Welder Embedded Fusion Capability Moving Intelligence (MOVINT) Exploitation and Fusion Intent-Driven Pilot-Vehicle Interface (PVI) for Rapid Kill Chain Execution 	Session 1C Room: 111/112 Vehicle Technology 1: Flight Sciences (UNCLASSIFIED) <ul style="list-style-type: none"> Advanced Propulsion Integration Laminar Flow (AEI, SETS, IRAD) Aerodynamic Flow Control Weapons Integration 	Session 1D Room: E2-Presentation Structures & Materials (UNCLASSIFIED) <ul style="list-style-type: none"> Adaptive Structures for Noise Reduction A Framework for Developing and Streamlining of Structural Analysis Tools Large Integrated Composite Structures-Subcomponent Design & Testing Advanced Development of Integrated Warm Structures (ADIWS) Structural Integrity Prognosis System (SIPS)
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1200 - 1300 **Lunch – APC Tent Annex**

1300 - 1500	Session 2A Room: 115A Network Systems 2 (UNCLASSIFIED) <ul style="list-style-type: none"> E-2 Open Business Model Network Modeling Advanced (Service Oriented) Information Broker Integrated Strike Warfare Airborne Networking (ISWAN) Scalable Maritime C4ISR System 	Session 2B Room: 115B Information Exploitation 2 (UNCLASSIFIED) <ul style="list-style-type: none"> Automated Video Alert System Multi-Level Combat Identification (MLCID) in a Layered Sensing Environment Fuzzy Enabled Layered Sensing (FELS) Exploiting Multipath for Efficient Target Classification 	Session 2C Room: 111/112 Vehicle Technology 2: Advanced VMS and Flight Controls (UNCLASSIFIED) <ul style="list-style-type: none"> Multi-Vehicle Cooperative Control Autonomous Terminal Area Operations (ATAO) Vehicle Management System (VMS) Affordability Advanced Aeroservoelastic Technology 	Session 2D Room: E2-Presentation Disruptive Manufacturing Concepts (UNCLASSIFIED) <ul style="list-style-type: none"> Optimized Edge Design by Direct Manufacturing Core via SLS Non-Spray Specialty Coatings Application (Co-Cured) Injectable Performance Coating Application (Mold In Place) Advanced Low Cost Manufacturing of Composite Airframes
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1500 - 1510 **Travel to Tours**

1510 - 1550	Session 3A Technology Tours and Demonstrations (UNCLASSIFIED) <ul style="list-style-type: none"> Cyber Warfare Integration Network Composites Fabrication Center F/A-18E/F Production 	Session 3B Table Top Demonstrations (UNCLASSIFIED) <ul style="list-style-type: none"> Fuzzy Enabled Layered Sensing Human Systems Engineering Capabilities Physiological Monitoring for Operator Performance Measurement Directed Energy Concept of Operations Simulation (DECS) Nonconventional Exploitation Factors Data System (NEFDS) 	Room: Tent Annex <ul style="list-style-type: none"> Information to the Tactical Edge (AIMS) Net Centric Reference Framework (NCRF) BLDS, PTDS Boundary Layer Devices Vehicle Systems Virtual Integration (VSVI) Nanomaterials Metallic Thermal Protection System Selective Laser Sintering (SLS) Parts Fastener-less Edge Co-cured coating samples (Additional Demos Not Listed) . . .
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1550 - 1600 **Return to APC**

1600 - 1745	Session 4A Room: 115A Nano/Metamaterials Technology Innovations (UNCLASSIFIED) <ul style="list-style-type: none"> Use and Exploitation of Nanomaterials for Space Exploration From Carbon Nanotubes to Batteries Field-Induced Forces for Directed Assembly and Particle Manipulation Integration of Nanotechnology in Air Vehicle Platforms Metamaterials Applications & Opps 	Session 4B Room: 115B Vehicle Technology 4: Structures and M&P (UNCLASSIFIED) <ul style="list-style-type: none"> Low Band Structural Array (LOBSTAR) Reliability –Based Design (RBD) of Bonded Joints and Structures Structural Proof Testing for Low Production Rate Unmanned Vehicles “The Mass Properties Challenge” from Product Inception to Delivery High Temperature Material Programs 	Session 4C Room: 111//112 Vehicle Technology 3 : Integrated Subsystems (UNCLASSIFIED) <ul style="list-style-type: none"> ADVENT T&PMS / Integrated Vehicle and Energy Technology Vehicle Systems Virtual Integration (VSVI) Subsystem Multi-Disciplinary Optimization (MDO) Power Extraction Demonstration 	Session 4D Room: E2-Presentation Manufacturing Technology (UNCLASSIFIED) <ul style="list-style-type: none"> Asymmetric Radome Manufacturing Next Generation Drilling System Direct Part Manufacturing / Selective Laser Sintering of Subsystems Next Generation Metals Manufacturing (Digital Direct Manufacturing of Metals And High Performance Economical Aluminum Preforms)
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Day 2

0700 - 0745 **Registration and Continental Breakfast – Aerospace Presentation Center (APC) / Tent Annex**

0745 - 0800 **Opening Remarks – Dr. Tom Romesser**
Vice President, Technology Development/Advanced Programs & Technology Division and NGAS Chief Technology Officer

0800 - 0900 **Keynote Speaker – Mr. Bruce Allen**
MASINT Community Executive, Office of the Director of National Intelligence

0900 - 0945 **Next Generation Intelligence, Surveillance, and Reconnaissance Systems**
Mr. Jeff Grant, Vice President, National Systems/Space Systems Division, NGAS

0945 - 1000 **Break**

Session 5A Core Avionics (UNCLASSIFIED)	Room: 115A	Session 5B Sensor Development & Integration 1 (UNCLASSIFIED)	Room: 115B	Session 5C Intelligence, Surveillance, and Reconnaissance (RESTRICTED)	Room: 111/112	Session 5D Directed Energy Systems (UNCLASSIFIED)	Room: E2-Presentation
<ul style="list-style-type: none"> Parallel Computation M&S for Complex Systems Fiber-Optics for Next-Gen Electronically Scanned Arrays Integrating Health Management and Autonomic Logistics Systems Real-time Data Stream Mining for Predictive Battlespace Awareness Image Processing using Cell Broadband Engine 		<ul style="list-style-type: none"> Sensors Overview Ladar/Lidar: Systems and Data Processing Advanced Lasers for Active Sensing Compact X-ray Laser Sources Next Generation Cryocoolers Hyperspectral Imaging - Visible to Long Wave IR 		<ul style="list-style-type: none"> "A Day in the Life" ISR Directions ATP/AMP Overview Mission 1 Mission 2 		<ul style="list-style-type: none"> Directed Energy Systems Welcome and Introduction Airborne Laser (ABL) Integration & Test Update Ultra-High Bandwidth, High Precision Active Tracker for Tactical Application Ultra-Compact, Super Light Weight Active Off-Axis SiC Beam Director Laser Weapon System Concepts 	

1200 - 1300 **Lunch – APC Tent Annex**

Session 6A Microelectronics Technology 1 (UNCLASSIFIED)	Room: 115A	Session 6B Sensor Development & Integration 2 (UNCLASSIFIED)	Room: 115B	Session 6C Restricted Payload Technologies (RESTRICTED)	Room: 111/112	Session 6D High Energy Laser System Technology (UNCLASSIFIED)	Room: E2-Presentation
<ul style="list-style-type: none"> Heterogeneous Integration with CMOS 220 GHz SMMIC Technology 340 GHz SMMIC Technology THz Electronics Technology 		<ul style="list-style-type: none"> Evolution of an Infrasonic Unattended Ground Sensor System (M2UGS) Throwable Motes Drive-By Tomography Active mmWave All-Electronic Imagery Behind Barriers Sensor Novel Infrared Imaging Methods for Characterizing Corrosion and Damage Under Paint 		<ul style="list-style-type: none"> "A Day in the Life" Wideband Phased Arrays RF Electronic Technologies Large Reflector Technologies Wideband Link and Comm Technologies 		<ul style="list-style-type: none"> High Energy Laser System Technology Directions Joint High Power Solid State Laser (JHPSSL) Productization of High Power Solid State Lasers High Power Fiber Laser Beam Combination Eyesafe Wavelength Laser Technology Beam Control Integrated Demo High Damage Threshold Coatings 	

1500 - 1510 **Travel to Tours**

Session 7A Technology Tours and Demonstrations (UNCLASSIFIED)	Session 7B Table Top Demonstrations (UNCLASSIFIED)	Room: Tent Annex	Session 7C Senior Panel Discussion: Enabling New Technologies and Missions Through Integrated Air and Space (UNCLASSIFIED)	Room: 115B
<ul style="list-style-type: none"> Cyber Warfare Integration Network Earth Science and Advanced Sensor Technologies Microelectronics Center 	<ul style="list-style-type: none"> Parallel Computation M&S for Complex Systems Co-cured coating samples ¼ Scale Wing Mold-In Place Asymmetric Radome Power Extraction Integrated Technology Treatment Application Inlet Duct Robotic Drilling (IDRD)/Integrated Assembly Line (IAL) More 		<ul style="list-style-type: none"> Mission Synergies Technology Evolution & New Domain Leverage Enhanced Capabilities More . . . 	

1550 - 1600 **Return to APC**

Session 8A Microelectronics Technology 2 (UNCLASSIFIED)	Room: 115A	Session 8B Sensor Development & Integration 3 (UNCLASSIFIED)	Room: 115B	Session 8C Restricted Program Technologies (RESTRICTED)	Room: 111/112	Session 8D Payload Products (UNCLASSIFIED)	Room: E2-Presentation
<ul style="list-style-type: none"> Q-Band GaN Technology InP HBT Mixed-Signal Technology High Dynamic Range Analog Optical Links Compressive Sampling Technology 		<ul style="list-style-type: none"> Airborne Mine Countermeasure System: Detection Technology Materials Signatures: Surface Property Modeling and Contamination Passive MMW Imaging Sensor Data Fusion 		<ul style="list-style-type: none"> Trinidad Compass LADAR Tactical RF MASINT Optical System Technologies "A Day In the Life" 		<ul style="list-style-type: none"> Introduction / Overview Antenna Products RF Products Processed Payloads Products Laser Products Beam Control Products 	

1745 - 2000 **Reception – APC Tent Annex**

Day 3

0700 - 0745 **Registration and Continental Breakfast – Aerospace Presentation Center (APC) / Tent Annex**

0745 - 0800 **Opening Remarks – Dr. Tom Romesser**

Vice President, Technology Development/Advanced Programs & Technology Division and NGAS Chief Technology Officer

0800 - 0900 **Keynote Speaker – Colonel Donald Wussler**
Director, Development Planning, Space and Missile Systems Center

0900 - 0945 **Next Generation Military Space Systems**
Mr. Fred Ricker, Vice President, Military Space Systems/Space Systems Division, NGAS

0945 - 1000 **Break**

1000 - 1200	Session 9A Room: 115A Aerospace Research Labs (UNCLASSIFIED)	Session 9B Room: 115B Next-Generation SATCOM Technologies & Architectures (UNCLASSIFIED)	Session 9C Room: 111/112 Advanced Concepts: Space and Directed Energy (RESTRICTED)	Session 9D Room: E2-Presentation Civil Space & Exploration Concepts (UNCLASSIFIED)
	<ul style="list-style-type: none"> ▪ Aerospace Research Labs (ARL) Introduction ▪ Conductive Carbon Nanotube Yarns and Sheets for Spacecraft Power and Signals ▪ Artificially-Structured Materials and Metamaterials ▪ Metamaterials for RF Applications ▪ Recent Advances in Computational Electromagnetics ▪ Terahertz Science and Technology 	<ul style="list-style-type: none"> ▪ The Future in MILSATCOM ▪ Protected MILSATCOM – TSAT RR&SD Results and AEHF Evolution Options ▪ MILSATCOM Key Enabling Payload Technologies ▪ Enabling New Capabilities Through the Proliferation of Protected Satcom Terminals ▪ Wideband Architectures 	<ul style="list-style-type: none"> ▪ Innovative Mission Solutions for Secondary Payloads ▪ Being the Right Customer for Rapid Mission Success ▪ Debris Solutions for Cleaning Up Space ▪ Big Ideas 	<ul style="list-style-type: none"> ▪ The Future of Civil Space ▪ Climate Monitoring Concept ▪ Earth Science & Weather Monitoring Concepts ▪ Space Science & Astrophysics Mission Concepts ▪ Exploration & Planetary Mission Concepts ▪ Civil Space & Exploration Concepts

1200 - 1300 **LUNCH – APC Tent Annex**

1300 - 1500	Session 10A Room: 115A Next-Generation Spacecraft Technologies 1 (UNCLASSIFIED)	Session 10B Room: 115B Space Technology Innovations (UNCLASSIFIED)	Session 10C Room: 111/112 Missile & Space Defense (RESTRICTED)	Session 10D Room: E2-Presentation Civil Space & Exploration Systems (UNCLASSIFIED)
	<ul style="list-style-type: none"> ▪ Spacecraft Technology: Drivers and Challenges ▪ Promise of Wireless Spacecraft ▪ Versatile, Efficient Spacecraft Power Management ▪ Flight Technology Demonstration I: Cubesats CP-7 and CP-8 ▪ Flight Technology Demonstration II: STP-H3 ▪ Discussion 	<ul style="list-style-type: none"> ▪ Technology Innovations Introduction ▪ Crystalline and Polycrystalline Core Optical Fibers ▪ Binary Large Imaging Space Structures ▪ Active Frequency Selective Surfaces for EO 	<ul style="list-style-type: none"> ▪ Missile & Space Defense Introduction ▪ Assessment of Current and Future Capabilities Against Emerging Threat ▪ Space Situational Awareness (SSA) Concepts ▪ WFOV Staring Sensors for Missile Warning ▪ Defensive Counterspace (DCS) Concepts 	<ul style="list-style-type: none"> ▪ Lunar Hazard & Avoidance System Development ▪ Composite Space Demo Structures, Composite Crew Module and Altair Struts ▪ MLAS Launch Abort System flight Demo Overview ▪ ISMS-8 In-Situ Manufacturing System Development & Applications ▪ Spacecraft for Future Missions ▪ Advanced Sensing Technologies

1500 - 1510 **Travel to Tours**

1510 - 1550	Session 11A Technology Tours and Demonstrations (UNCLASSIFIED)	Session 11B Technology Innovations Poster Session (UNCLASSIFIED) Room: Tent Annex	
	<ul style="list-style-type: none"> ▪ Earth Science and Advanced Sensor Technologies ▪ Space Science and Astrophysics ▪ Wireless Satellite Testbed ▪ Confocal Antenna Near-field Test model ▪ Microelectronics Center 	<ul style="list-style-type: none"> ▪ Optical Galvanic Skin Response (GSR) Surrogate for Remote Polygraphy ▪ Dynamically-Tuned Vanadium Dioxide Metamaterials for the Optical Domain ▪ Photonic Metamaterials: Engineered Electromagnetic Structures for Visible, IR and THz Frequencies ▪ Plasmonic Devices for Optoelectronics ▪ Growth Of Phase-pure Defect-free Nanowires ▪ IR Source Absolute Radiance Calibration Without Calibration Standards 	<ul style="list-style-type: none"> ▪ A Novel Means for Reducing Spent Nuclear Fuel Rod Storage Time ▪ Novel Means for THz Difference-Frequency Generation in a Non-birefringent Crystal ▪ Ionic Liquid Propellants: Future Stealth Explosives ▪ Gas-solid reactions: A lighter, safer chemical oxygen iodine laser (COIL) ▪ Novel Image Enhancement Algorithms: Lucky Shot and POD ▪ More . . .

1550 - 1600 **Return to APC**

1600 - 1745	Session 12A Room: 115A Next-Generation Spacecraft Technologies 2 (UNCLASSIFIED)	Session 12B Room: 115B Electronic Payload Technology (UNCLASSIFIED)	Session 12C Room: 111/112 Missile Defense Systems-of-Systems Response to Threats (RESTRICTED)	Session 12D Room: E2-Presentation Spacecraft Mission & Technology Futures (UNCLASSIFIED)
	<ul style="list-style-type: none"> ▪ Spacecraft Technology: Drivers and Challenges ▪ Super Strength Silica Resin (S3R) ▪ Advanced In-Space Propulsion ▪ Discussion 	<ul style="list-style-type: none"> ▪ WB ADC & UHDR ADC Technology ▪ Wafer Level Packaging Technology ▪ Compact Optical True-Time Delay Technology ▪ GaN Technology ▪ RF Technologies 	<ul style="list-style-type: none"> ▪ Threat-X 	<ul style="list-style-type: none"> ▪ Hardware in the Loop Testbed for A Fractionation World ▪ A Prototyping Garage for Rapid Problem Solving ▪ Advanced, High Utility Cubesats

1745 **2009 Aerospace Technology Forum Concludes**