

Technical Meeting on Development, Qualification and Affordability of Complex Systems 2022

Huntsville, Alabama, USA
14 – 15 September 2022

ISBN: 978-1-7138-6505-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.
These proceedings were created from a scanned original document, and are the best quality available.**

Copyright© (2022) by Vertical Flight Society
All rights reserved.

Printed with permission by Curran Associates, Inc. (2023)

For permission requests, please contact Vertical Flight Society
at the address below.

Vertical Flight Society
2701 Prosperity Ave, Suite 210
Fairfax, VA 22031
USA

Phone: (703) 684-6777
Fax: (703) 739-9279

www.vtol.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com



**VFS Development, Qualification and Affordability of
Complex Systems Technical Meeting Agenda
Sept 14–15, 2022
Radiance Technologies, Huntsville, AL**

| Wednesday, Sept 14, 2022 | | |
|--------------------------|---|----|
| 0700-1200 | Attendee Badge Pick-up | |
| 0700-1200 | Presentation Material Drop-off for Authors | |
| 0800-0815 | Welcome by Redstone Chapter President – Mr. Bill McCandless, US Army FLRAA Program Office | |
| | Meeting Objectives by General Chair – Mr. Eric Grigorian, GTRI | |
| 0815-0900 | Opening Keynote: MG Robert Barrie, PEO AVN | |
| | Session I – Safety & Certification Session Chair: Dave Cripps, US Army CCDC AvMC, SRD | |
| 0900-0910 | Safety and Certification Initial Comments: Dave Cripps | |
| 0910-0930 | Session Invited Topic: <i>IFR & IMC Qualification</i> , Mel Johnson, US Army CCDC AvMC | |
| 0930-0955 | <i>Certification Considerations for Flight Critical Complex Non-traditionally Developed Software</i> , Jason Rupert, Modern Technology Solutions | 1 |
| 0955-1010 | Break | |
| 1010-1035 | <i>Validation of Mission Performance Calculator (MPC) for Airworthiness Applications of Future Vertical Lift Platforms (Presentation Only)</i> , John Sims, US Army DEVCOM AvMC | |
| 1035-1100 | <i>Safety and Product Robustness in the Air Vehicle Design Process</i> , Barton Hainsworth, Ide Ehigiato, Pete Barner, Sikorsky, a Lockheed Martin Co. | 13 |
| 1100-1145 | Questions and Roundtable Discussion | |
| 1145-1230 | Lunch | |
| | Session II - Modeling and Simulation Session Chair: Alex Boydston, US Army CCDC AvMC | |
| 1230-1240 | Modeling and Simulation Initial Comments: Alex Boydston | |
| 1240-1300 | Session Invited Topic: <i>SCADE/Transitioning to MBSE & Understanding ROI</i> , Justin Pearson, US Army CCDC AvMC | |
| 1300-1325 | <i>Modern Aircraft Flight Control Design and Bare Aircraft Sizing: an Integrated Model-Based Approach</i> , F.D. Amato, N. Cortigiani, D. Del Gobbo, L. Belluomini, D. King, Leonardo Helicopters | 26 |
| 1325-1340 | Break | |
| 1340-1405 | <i>Leveraging Digital Engineering to Reimagine Computational Analyses</i> , Dave O'Brien, US Army DEVCOM AvMC | 39 |
| 1405-1430 | <i>Analyzing Mechanical Systems Using 3DX Design Tables, Kinematic Simulations, and Dynamic Simulations</i> , Jack Faysash, Sikorsky, a Lockheed Martin Co. | 45 |
| 1430-1515 | Questions and Roundtable Discussion | |
| 1515-1600 | <i>Development, Qualification and Affordability of Complex Multicore Systems (Presentation Only)</i> , John Warther, Green Hills Software | |
| 1600-1730 | Social | |



**VFS Development, Qualification and Affordability of
Complex Systems Technical Meeting Agenda
Sept 14–15, 2022
Radiance Technologies, Huntsville, AL**

| Thursday, Sept 15, 2022 | | |
|-------------------------|---|----|
| 0700-1200 | Attendee Badge Pick-up | |
| 0700-1200 | Presentation Material Drop-off for Authors | |
| 0800-0815 | Welcome by General Chair: Mr. Eric Grigorian, GTRI | |
| 0815-0900 | Opening Keynote: Mr. Dan Bailey, Deputy Director, Future Vertical Lift CFT | |
| | Session III – Complex Design & Control Session Chair: David O'Brien, US Army DEVCOM AvMC | |
| 0900-0910 | Complex Design & Control Initial Comments: David O'Brien | |
| 0910-0930 | Session Invited Topic: ERDC, HPC-enabled Design and Analyses , Dr. Ian Dettwiller, U.S. Army Engineer Research & Development Center (ERDC) | |
| 0930-0955 | <i>Multidisciplinary Design of a Complex Tiltrotor Morphing Wing System</i> , D. Rogers, C. Punzi, A.A. Trezzini, P. Abdel Nour, Leonardo Helicopters | 54 |
| 0955-1010 | Break | |
| 1010-1035 | <i>Verification of Electric Aircraft during Steady State Operation and Fault Conditions (Presentation Only)</i> , Mitchell Marks, HBK | |
| 1035-1100 | <i>Simulation and Integration Laboratory (SaIL) Testing of Integrated Cockpit and Fly By Wire</i> , Luca Belluomini and Sid Xiao, Leonardo Helicopters | 63 |
| 1100-1145 | Questions and Roundtable Discussion | |
| 1145-1230 | Lunch | |
| | Session IV – Lifecycle Digital Engineering Session Chair: TBD | |
| 1230-1240 | Digital Engineering Initial Comments: TBD | |
| 1240-1300 | <i>A Missing Piece of PEO Enterprise Architectures: The Assured Infrastructure Model</i> , M. Brown, D. Walsh, S. Nagel, H. Tiedeman, Collins Aerospace | 80 |
| 1300-1325 | <i>Component Specification Model</i> , Dr. Jon Fox, GTRI | |
| 1325-1340 | Break | |
| 1340-1405 | <i>Measuring Power Losses in Motors and Inverters (Presentation Only)</i> , Mitchell Marks, HBK | |
| 1430-1455 | <i>Oil Debris Monitoring: Advanced Analytics Enabling Maintenance Efficiencies (Presentation Only)</i> , Adam Oszmian, Gastops | |
| 1455-1530 | Questions and Roundtable Discussion | |
| 1530-1600 | Closing – Bill McCandless | |

