Press Release

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Vertical Flight Society Announces Winner of 2020 Alfred Gessow Best Paper Award

Fairfax, Virginia — The Vertical Flight Society (VFS) announced today the winner of the Society's prestigious Alfred Gessow Award for the best technical paper at the 76th Annual Forum and Technology Display**. This year's winning paper is from the Acoustics sessions: entitled, Development and Validation of Generic Maneuvering Flight Noise Abatement Guidance for Helicopters by James H. Stephenson, III.** Dr. Stephenson is an Aerospace Research Scientist at the US Army Combat Capabilities Development Command (CCDC) Aviation & Missile Center (AvMC) in Hampton, Virginia. It and all of the best papers are available for purchase in the Vertical Flight Library & Online Store.

The selection process, which began in October 2019, was very rigorous. Out of more than 325 abstracts received, Forum 76 session chairs selected some 270 papers for publication, with 230 presented at the virtual, livestreamed event. During the Forum, the session chairs and technical committee chairs selected the best papers from each of the 21 technical papers for final consideration. Then the Society's Deputy Technical Directors for Aeromechanics, Vehicle Design, Vehicle Integrity, System Integration, Systems Engineering, and Operations and Product Support winnowed that number down to six papers. Following that, the VFS Technical Director and a committee of technical experts reviewed and ranked the papers, and in that ranking, determined that the selected paper was the best of the best.

This year's Forum 76 was held virtually from Oct 5-8, 2020. Next year, the Society's 77th Annual Forum & Technology Display will be held May 11-13, 2021, in West Palm Beach, Florida, USA.

Dr. Stephenson will receive complimentary travel, registration and lodging to the 2021 European Rotorcraft Forum (ERF) in Glasgow, Scotland, Sept. 7-10, 2021, where he will present his paper. The award is named after the renowned helicopter pioneer, researcher, author, professor and founder of the rotorcraft center at the University of Maryland now named for him.

The full list of other Forum 76 best papers with links:

- **Acoustics** (and best overall in Aeromechanics disciplines): Development and Validation of Generic Maneuvering Flight Noise Abatement Guidance for Helicopters by James H. Stephenson, US Army CCDC AvMC; Michael E. Watts, Analytical Mechanics Associates, Inc.; Eric Greenwood, Pennsylvania State University; Kyle A. Pascioni, NASA Langley Research Center (selected as the overall Gessow Best Paper of Forum 76)
- **Advanced Vertical Flight** (a tie between the following two papers): Design, Development and Flight Testing of a Gun-Launched Rotary-Wing Micro Air Vehicle by Hunter Denton, Moble Benedict, Texas A&M University; Hao Kang, US Army CCDC Amy Research Laboratory (ARL); Vikram Hrishikeshavan,

University of Maryland; and Experimental Measurements and Low-Order Modeling of Stacked Rotor Performance in Hover, Chloe Johnson, Jayant Sirohi, University of Texas at Austin

- **Aerodynamics:** Numerical and Experimental Investigation into the Aerodynamic Benefits of Rotorcraft Formation Flight by Mark Voskuijl, Jan de Vries, Finbar van der Veen, Netherlands Defence Academy; Ramon Duivenvoorden, Delft University of Technology; Lars Moree, Royal Netherlands Air Force
- **Aircraft Design**: Investigation of BERP-Shape Tip Design on an Apache Rotor Blade by Ronny Widjaja, Defence Science and Technology Group; Joon W. Lim, Rohit Jain, Mark Potsdam, US Army CCDC AvMC
- **Avionics & Systems**: Stability Augmentation System for Coaxial Ultralight Helicopters by Tobias Richter, Benjamin Rothaupt, Alexander Steinwandel, Walter Fichter, University of Stuttgart; Benedikt Grebing, edm aerotec GmbH
- **Crash Safety**: Crashworthiness of a Lift Plus Cruise eVTOL Vehicle Design within Dynamic Loading Environments by Jacob Putnam, Justin Littell, NASA Langley Research Center
- **Crew Stations & Human Factors** (and best overall in Systems Integration disciplines): Multisensory Cueing to Resolve Helicopter Drift Detection in DVE by Angus Rupert, DRIP; Braden McGrath, Embry-Riddle Aeronautical University; Bruce Mortimer, Engineering Acoustics Inc.; J. Christopher Brill, US Air Force Research Lab
- **Dynamics**: Tiltrotor Conversion Maneuver Analysis with RCAS by Hyeonsoo Yeo, US Army CCDC AvMC; Hossein Saberi, Advanced Rotorcraft Technology, Inc.
- **Electric VTOL (Provisional) Technical Committee**: Wind Tunnel Testing and Analysis of a Rigid, Variable Speed Rotor for eVTOL Applications by William Staruk, Evan Bonny, Lauren Butt, Cody Gray, Garrett Hennig, Diego Represa, Richard Toner, Aurora Flight Sciences, A Boeing Company
- **Handling Qualities**: Outer-Loop Control Design and Simulation Handling Qualities Assessment for a Coaxial-Compound Helicopter and Tiltrotor by Tom Berger, Mark B. Tischler, US Army CCDC AvMC; Joseph F. Horn, Pennsylvania State University
- **Health and Usage Monitoring Systems**: Bell 525 Relentless — Using Tail Rotor Torque Measurements for Maintenance Credit by Brian Tucker, Drew Waller, Ankit Patel, Bell Textron Inc.
- **Manufacturing Tech. & Processing**: Bell 505 Automation at Final Assembly - Project Octopus by Cédric Rochex, Bell
- **Modeling & Simulation**: Enhancement and Validation of VPM-Derived State-Space Inflow Models for Multi-Rotor Simulation by Matthew Gladfelter, Chengjian He, Chongseok Chang, Advanced Rotorcraft Technology, Inc.; Mark B. Tischler, Mark J. S. Lopez, US Army CCDC AvMC; Ondrej Juhasz, US Naval Academy
- **Operations**: Dragonfly: Defining Environments for Rotorcraft Flight on Titan by Ralph D. Lorenz, Johns Hopkins Applied Physics Laboratory
- **Product Support Systems Technology** (and best overall in Operations & Product Support disciplines): Leveraging Additive Manufacturing for Low-Volume, Out-of-Production Spare Parts by Thomas G. Reilly, Bell
- **Propulsion** (and best overall in Vehicle Design disciplines): Development of a Brushless DC Motor Sizing Algorithm for a Small UAS Design Framework by Farid Saemi, Moble Benedict, Texas A&M University; Nathan Beals, Army Research Laboratory
- **Safety**: Status and Way Forward on Rotorcraft Lightning Protection by Sonia Zehar, Marc Meyer, Bernard Tagliana, Airbus Helicopters
- **Structures & Materials** (and best overall in Vehicle Integrity disciplines): Structural Integrity Challenges for Future Rotorcraft Programs by Robert E. Benton, US Army CCDC AvMC
- **Systems Engineering Tools & Processes** (and best overall in System Engineering disciplines): Advances in Property Model Methodology (PMM) by Patrice Micouin, Micouin Consulting; Louis Fabre, Christian Gaurel, Nicolas Martignago, Pascal Pandolfi, Pascal Paper, Thomas Razafimahefa, Airbus Helicopters

- **Test & Evaluation**: GPS-BASED Airspeed Calibration for Rotorcraft: Generalized Application for All Flight Regimes by Denis Hamel, Alexander Kolarich, Airbus Helicopters
- **Unmanned VTOL**: Atmospheric Sampling in Urban Areas and Complex Terrain using UAS Swarms by Jared Cooper, David Neal, Adam Reed, Barron Associates, Inc.; Stephan De Wekker, University of Virginia; Alex R. Andrekanic, Matthew S. Paulini, US Air Force Research Laboratory

In addition, the **History Committee** recognized The Aircraft, the Rotorcraft and the Life of Walter Rieseler 1890-1937 by Berend G. van der Wall, German Aerospace Center (DLR), as the winner of the Bernard Lindenbaum Best Historical Paper.

Founded in 1943 as the American Helicopter Society, the Vertical Flight Society today is the international organization that advocates, promotes and supports global vertical flight technology and professional development. For 77 years, the Society has provided global leadership for the advancement of vertical flight.

The Vertical Flight Society
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