

The Hampton Roads Chapter (HRC) of the
American Helicopter Society (AHS) International
Presents the

**Technical Specialists' Meeting on
Rotorcraft Structures and Survivability**

Structures Solutions for Future Vertical Lift

October 29-31, 2013

Ft. Magruder Hotel and Conference Center
Williamsburg, Virginia

General Chairman
Mr. Jon Schuck, US Army ADD

Technical Chairpersons
Dr. Mark E. Robeson, US Army ADD-AATD
Mr. Nate Bordick, US Army ADD-AATD
Dr. Karen E. Jackson, NASA Langley Research Center

TUESDAY, OCTOBER 29, 2013

**8:00 – 12:00 PM Session A:
Structural Integrity and Structural Health Monitoring (SHM)
Moderator – Bordick, US Army ADD-AATD**

8:00 – 8:30 AM “Progress and Planning for US Army Rotorcraft Structural Integrity Program Standardization,” Robeson, US Army ADD-AATD

8:30 – 9:00 AM “SHM of Joints in Composite Laminate Structures,” Lissenden, Penn State University

9:00 – 9:30 AM “Design, Analysis, and Characterization of a PMN-PT Single Crystal Energy Harvester for Rotorcraft Wireless Sensor Applications,” Wozniak, Penn State

9:30 – 10:00 AM “Development of an Airframe Structural Integrity Management System,” Brookhart, Sikorsky

10:00 – 10:30 AM Break

10:30 – 11:00 AM “Flight Severity Calculation for HH-60G Airframe Structure,” Wood, Mercer Engineering Res. Center

11:00 – 11:30 AM “SHM-embedded Design for High Performance, Sustainable, and CBM-Enabling Structures of Future Vertical Lift,” Chang, Stanford University

11:30 – 12:00 PM “The State of the Art and the Art of the Possible Using X-Ray Diffraction Residual Stress Measurement Technologies in Aerospace,” Cuccia, Proto Manufacturing Inc.

12:00 – 1:30 PM Luncheon Keynote:
David Friedmann, AATD
Joint Multi Role Technology Demonstration

1:30 – 5:00 PM Session B:
Durability and Damage Tolerance
Moderator – Robeson, US Army ADD-AATD

1:30 – 2:00 PM “Simulation of Detecting Damage in Composite Stiffened Panel Using Lamb Waves,” Wang, NASA Langley Research Center

2:00 – 2:30 PM “Analysis of Hydrodynamic Ram Compliant Structure,” Gatley, Boeing

2:30 – 3:00 PM “Integrated Test/Modeling Analysis of Bonded Joints in Rotorcraft Composite Structures,” Gurvich, United Technologies Research Center

3:00 – 3:30 PM Break

3:30 – 4:00 PM “Assessing Rotorcraft Airframe Durability & Damage Tolerance,” Sarlashkar, Sikorsky

4:00 – 4:30 PM “Full-Field Strain Analysis of Compressively Loaded Flat Composite Laminates Containing Undulated Fiber Architecture,” Henry, Penn State

4:30 – 5:00 PM “Laser Peening for Improved Fatigue Lifetime of a Wing Attachment Shear-Tie – Application to Rotorcraft Structures,” Hackel, Metal Improvement Co.

WEDNESDAY, October 30, 2013

8:00 – 11:30 PM Session C:
Ongoing/Future Programs and Structures Technology
Moderator – Jackson, NASA

8:00 – 8:30 AM “An Introduction to the Combat Tempered Platform Demonstration,” Cappelli, Sikorsky Aircraft

8:30 – 9:00 AM “NASA’s Advanced Composites Project,” Young, NASA Langley Research Center

9:00 – 9:30 AM “Composite Certification Initiative,” Schuck, US Army ADD

9:30 – 10:00 AM Break

10:00 – 10:30 AM “Micromechanical Model of X-Cor and K-Cor Reinforced Foams,” Caputo, Materials Research and Design

10:30 – 11:00 AM “Damage Tolerance Stretched Broken Carbon Fiber,” Crocco, US Army ADD-AATD

11:00 – 11:30 AM “Advances in Prediction of Residual Stress and Part Distortion of Machined Components,” Erickson, Third Wave Systems

11:30 – 1:30 PM Lunch

1:30–5:30 PM

Session D: Crashworthiness

Moderator – Charles Clarke, Sikorsky

1:30 – 2:00 PM “Evaluation of the Transport Rotorcraft Airframe Crash Testbed (TRACT) Full Scale Crash Test,” Annett, NASA Langley

2:00 – 2:30 PM “H-46 Airframe Crash Test (TRACT),” Bark, NAVAIR

2:30 – 3:00 PM “Active Crash Protection System (ACPS),” Bolukbasi, The Boeing Company

3:00 – 3:30 PM “Investigation of Human Kinematics and Risk of Injury during a Vertical Crash using THOR Dummy and Human Finite Element Models,” Untaroiu, VA Tech

3:30 – 4:00 PM “Biodynamic Model Development for Intense Shocks,” Singh, University of Maryland

4:00 – 4:30 PM Break

4:30 – 4:50 PM “Impact Testing and Simulation of Composite Airframe Components,” Jackson, Littell, and Fasanella, NASA Langley Research Center

4:50 – 5:10 PM “Impact Testing and Simulation of a Full-Scale Composite Subfloor Section,” Seal, Fasanella, Littell, and Jackson, Analytical Mechanics Associates, Inc.

5:10 – 5:30 PM “Impact Testing and Simulation of a Full-Scale Composite Fuselage Section,” Fasanella, Jackson, Littell, and Seal, National Institute of Aerospace

THURSDAY, October 31, 2013

8:00 – 12:00 PM Session E:

Crashworthiness and Vulnerability Reduction

Moderator – Bark, NAVAIR

8:00 – 8:30 AM “Predicted Performance of an Optimized Energy-Absorbing Crashworthy Seat During Idealized and Actual Crash Pulses,” Richards, BAE Systems

8:30 – 9:00 AM “Side-Facing Seat Injury Criteria and Testing Methodology Development,”
Richards, BAE Systems

9:00 – 9:30 AM “Aircraft Seat Certification by Analysis from a Regulatory Perspective,”
Pellettiere, FAA

9:30 – 10:00 AM “Appropriate Dynamic Testing of Seats Installed in Rotorcraft,” Miles, FAA

10:00 – 10:30 AM Break

10:30 – 11:00 AM “Variable Profile Energy Absorbers,” Labun, SAFE, Inc.

11:00 – 11:30 AM “Development of Ballistic Tolerant Aircraft Structure,” McCarthy, The Boeing
Company

11:30 – 12:00 PM “Blast Analysis of Aircraft Structure,” Chiu, The Boeing Company