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Intelligent Ships Symposium (ISS) X

May 20-21, 2015
University of Pennsylvania Annenberg Center
Philadelphia, PA

WEDNESDAY, MAY 20, 2015

Keynote Address

- RADM Nevin P. Carr, Jr., USN (Ret.), Vice President, Navy Strategic Account Manager, Leidos

Plenary Session

- Dr. Robert Brizzolara, Program Manager Unmanned Sea Surface Vehicles, ONR
- Mr. Scott Littlefield, Program Manager Unmanned Maritime Vehicles, DARPA
- Mr. Scott Sampson, Lead Engineer for Unmanned Sea Vehicles, NSWC Carderock
- Carl Conti, Spatial Integrated Systems, Program Manager

Technical Track 1

Moderators: Mark Uva and Dr. Abner Rodriguez

- *The Road to MVDC* (Dr. Norbert Doerry)
- *Maintenance and Material Readiness in Data Driven Environment* (Gary Zukowski) pg. 21
- *Segment 2: The Coast Guard's Next Generation C4ISR System* (CDR James Betz) N/A
- *An Extensible CBM Architecture for Naval Fleet Maintenance Using Open Standards* (Dr. Sumant Tambe) pg. 27

Technical Track 2

Moderators: Dr. Michael Knauff and Daniel Santosusso

- *Potential Opportunities To Impact Efficiency And Performance For Naval Ships Fitted With Intelligent Systems* (Thomas Canty) pg. 39
- *Reference Implementation of Basic Shipboard Machinery Control System Building Blocks in IEC 61499* (Kenneth Fisher) pg. 47
- *Modeling and Stability Analysis of a MVDC System in the dq-Reference Frame* (Shaun Cruz) pg. 57
- *Enabling Modularity in the Littoral Combat Ship* (Dr. Paul Pazandak) pg. 65
- *A Residual Approach to Multi-agent Fault Detection and Isolation Using Asynchronous Belief Propagation for Fault-free Modelling of a Naval Vessel's Chilled Water System* (Fumbeya Marungo) pg. 80
- *Naval Voice Communications Modularity and Modernization* (Dan Wolfe) pg. 107

Technical Track 3

Moderators: Ed Ostapowicz and Shaun Cruz

- *Next-Generation Cybersecurity For Advanced Real-Time Distributed Systems* (Philip Irely) pg. 114
- *Energy Cost Savings with the Collective Protection System Variable Speed Drive Control System* (Robert Snodgrass) pg. 123
- *Development of an Optimization Algorithm based on Differential Evolution for the Navy Ship Maintenance Scheduling Problem* (Dr. Han Bao) pg. 135
- *Improvements to the Power Generation and Distribution System* (Larry Burda) pg. 148
- *Autonomic Management of Shipboard Power Systems and its Challenges* (Dr. Ranjit Amgai) pg. 157

THURSDAY, MAY 21, 2015

Symposium Remarks

- Thomas Fien, ISS Chairman 2015, NAVSSES Philadelphia - N/A
- Eric Mscisz, ASNE Vice Chair Delaware Valley Chapter, NAVSSES Philadelphia - pg. 163

Technical Track 1

Moderator: Christopher Lester

- *Fleet Support Knowledge Management* (David Sonenschein) pg. 165
- *Intelligent Physics Reference Models to Improve Ship Readiness, Response to Battle Damage and Reduce Total Ownership Costs* (CDR Joesph Famme) pg. 170
- *Navigating the Compliance, Risk and Engineering Cyber Security Challenges Impacting Navy Programs* (Eric Matthews) pg. 192

Technical Track 2

Moderator: Mark Uva

- *Data Driven Code Generation and Reuse for Large PLC Projects* (Andrew Limbaugh) pg. 204
- *Data Driven Qualitative Simulation and Automated Testing for Control Systems* (Marcus Eaves) pg. 212
- *Using Simulation Tools to Predict and Prevent Vacuum Circuit Breaker Switching Induced Transformer Failures* (Dr. Thomas McDermott) pg. 233
- 1030-1130 *Additive Manufacturing (AM) Across the Warfare Centers* (Michael Robinson, NAVSSES) N/A

Track 3

Moderator: Ewane Etinge

- *Distributed Multi-Agent Active Diagnosis for Ship Auxiliary Systems* (Dr. Kevin Schultz) pg. 247
- *Condition Based Maintenance Plus Best Practices to Meet Modern Surface Ship Technical Challenges of COTS Electronics* (Ruben Ortiz) pg. 257
- *Improved Damage Control Through Increased Control System Automation* (Marco Nottegar) pg. 270