

# ShipTech 2018

## Monday, March 26

5:00 p.m. - 7:00 p.m.	<b>Registration</b>	<b>Crystal Promenade AB</b>
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## Tuesday, March 27

7:00 a.m. - 6:00 p.m.	<b>Registration</b>	<b>Crystal Promenade AB</b>
<b>General Session</b>		<b>Crystal Ballroom</b>
8:00 a.m.	<b>Welcome</b> Dr. David E. Walker, Portfolio Director, Office of Naval Research	
8:15 a.m.	<b>Keynote Address</b> RADM David J. Hahn, Chief of Naval Research, Office of Naval Research	
9:00 a.m.	ManTech – John U. Carney, Director, Navy ManTech Program, Office of Naval Research	
9:20 a.m.	NSRP – Rick Spaulding, Past Chair, National Shipbuilding Research Program / Vice President, Central Planning and Process Excellence, Ingalls Shipbuilding	
9:40 a.m.	<b>Break / Exhibits / Technical Posters</b>	<b>Emerald Ballroom</b>
<b>General Session</b>		<b>Crystal Ballroom</b>
10:00 a.m.	<b>Panel Discussion: Lead Ship vs. Follow-on Ship Cost Differential</b> Moderator – RADM David J. Hahn, Chief of Naval Research, Office of Naval Research 10:05 CAPT Philip E. Malone, Program Manager, CVN 79/80 FORD Class Aircraft Carrier 10:20 CAPT Kevin R. Smith, Program Manager, DDG 1000 ZUMWALT Class Destroyer 10:35 Matthew D. Sermon, Deputy Program Manager, COLUMBIA Class Submarine 10:50 William P. Lennon, Vice President, COLUMBIA Class Submarine Program, General Dynamics Electric Boat 11:05 Q&A	
12:00 p.m.	Lunch ( <i>on your own</i> )	
<b>Concurrent Technical Sessions</b>		
1:30 p.m.	<b>Joining Technologies</b> <b>Product Design</b> <b>Production Processes</b> <b>Shipbuilding Processes and Technologies</b>	<b>Crystal Ballroom - AB</b> <b>Crystal Ballroom - C</b> <b>Crystal Ballroom - D</b> <b>Crystal Ballroom - EF</b>
3:00 p.m.	<b>Break / Exhibits / Technical Posters</b>	<b>Emerald Ballroom</b>

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3:30 p.m.	<b>Joining Technologies</b> <b>Product Design</b> <b>Production Processes</b> <b>Shipbuilding Processes and Technologies</b>	<b>Crystal Ballroom - AB</b> <b>Crystal Ballroom - C</b> <b>Crystal Ballroom - D</b> <b>Crystal Ballroom - EF</b>
5:00 p.m.	<b>Break / Exhibits / Technical Posters</b>	<b>Emerald Ballroom</b>
6:00 p.m.	<b>Adjourn</b>	

### Wednesday, March 28

7:00 a.m. - 1:00 p.m.	<b>Registration</b>	<b>Crystal Promenade AB</b>
<i>General Session</i>		<b>Crystal Ballroom</b>
7:50 a.m.	<b>Welcome</b> Dr. David E. Walker, Portfolio Director, Office of Naval Research	
8:00 a.m.	<b>Keynote Address</b> RDML Lorin C. Selby, Chief Engineer and Deputy Commander for Ship Design, Integration and Naval Engineering, Naval Sea Systems Command	
8:45 a.m.	<b>Panel Discussion: Integrated Warfare Systems</b> Moderator – Dr. Thomas C. Fu, Division Director (Code 331), Ship Systems and Engineering Research, Office of Naval Research 8:50 Michael W. Roberts, SES, Director, Development and Integration, Program Executive Office, Integrated Warfare Systems 9:00 George H. Camp, PE, LYS Engineering & Design Manager, General Dynamics Bath Iron Works 9:10 Mark J. Munkacsy, Technical Director, Seapower Capability Systems, Raytheon 9:20 Q&A	
10:15 a.m.	<b>Closing Remarks</b> Dr. David E. Walker, Director of Technology, Office of Naval Research	
10:20 a.m.	<b>Break / Exhibits / Technical Posters</b>	<b>Emerald Ballroom</b>
<i>Concurrent Technical Sessions</i>		
11:00 a.m.	<b>Additive Manufacturing</b> <b>Innovative Technologies</b> <b>Mixed Reality Technologies</b> <b>Robotics</b>	<b>Crystal Ballroom - AB</b> <b>Crystal Ballroom - C</b> <b>Crystal Ballroom - D</b> <b>Crystal Ballroom - EF</b>
1:00 p.m.	<b>Adjourn</b>	

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## Concurrent Technical Sessions

### PRESENTATIONS

**Tuesday, March 27**

	Joining Technologies Crystal Ballroom - AB	Product Design Crystal Ballroom - C	Production Processes Crystal Ballroom - D	Shipbuilding Processes & Technologies Crystal Ballroom - EF
Session Co-chairs	William Palko WP Consulting  Lee Kvidahl Ingalls Shipbuilding	Dale Orren Advanced Technology International, Center for Naval Metalworking, Naval Shipbuilding and Advanced Manufacturing Center  Alicia D'Aurora Newport News Shipbuilding	Neil Graf Office of Naval Research  Ken Fast General Dynamics Electric Boat	David Ditto Penn State Electro-Optics Center  Jason Farmer Ingalls Shipbuilding
1:30 p.m.	<b>High Deposition Submerged Arc Welding</b> Garrett Sonnenberg, Newport News Shipbuilding, and Nancy Porter, EWI	<b>WeightCheck: Digital Deadweight Survey</b> Jeb Baugh and Rob Parker, Praeses, LLC	<b>Thin Plate Distortion and Accuracy Control</b> Kyle Reasbeck, Concurrent Technologies Corporation; Bruce Horn, Bruce Horn Consulting; and Jeffrey Cook, Ingalls Shipbuilding	<b>Distributed Temperature Sensing for Inspection of Electrical Panels on Navy Ships</b> Jeffrey Callen, Penn State Electro-Optics Center
2:00 p.m.	<b>Advanced Manufacturing Technology for Weld Operations Applied to Deck Plate and Ship Compartments</b> Stephen Canfield, Robotic Technologies of Tennessee, and Patrick Cahill, Cahill Consulting	<b>3 VIEWS to 3D: How Hybrid Models are Moving Legacy Programs into a Model- based Enterprise</b> Mark Debbink, Newport News Shipbuilding	<b>Optimized Lifting and Handling</b> Mary DeSilvey Adams, Ingalls Shipbuilding	<b>Introducing Systems into Multiple Platforms</b> John Mazurowski, Penn State Electro-Optics Center, and Jason Farmer, Ingalls Shipbuilding
2:30 p.m.	<b>High Deposition Out-of-Position Mechanized GMAW-Pulse</b> Amanda Henry, Newport News Shipbuilding	<b>Simulation-driven Design for Shipbuilding</b> Eamon Whalen, Altair	<b>GeoCLIC – Geospatial Component Location, Identification &amp; Condition</b> Doug Livermon and Jay Arnett, Newport News Shipbuilding	<b>Cybersecurity for Direct Digital Manufacturing</b> Scott Zimmerman and Lucas Truax, Concurrent Technologies Corporation
3:00 p.m.	<b>Break / Exhibits / Technical Posters</b>	<b>Break / Exhibits / Technical Posters</b>	<b>Break / Exhibits / Technical Posters</b>	<b>Break / Exhibits / Technical Posters</b>

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Session Co-chairs	William Palko WP Consulting  Lee Kvidahl Ingalls Shipbuilding	Dale Orren Advanced Technology International, Center for Naval Metalworking, Naval Shipbuilding and Advanced Manufacturing Center  Alicia D'Aurora Newport News Shipbuilding	Neil Graf Office of Naval Research  Ken Fast General Dynamics Electric Boat	David Ditto Penn State Electro-Optics Center  Jason Farmer Ingalls Shipbuilding
3:30 p.m.	<b><i>Alternate Leak Detection Methods</i></b> Sarah Hayes, Ingalls Shipbuilding, and Nancy Porter, EWI	<b><i>3D Hullform Modeling to Support Naval Ship Design Synthesis and Multi-objective Optimization</i></b> Joshua Edwards, Phoenix Integration, Davey Winyall and Alan Brown, Virginia Tech	<b><i>Implementation of a High-speed Cutting Process for Submarine Hulls used for Shipbreaking and Maintenance</i></b> Jerald Jones and Valerie Rhoades, EnergyTech, Inc.	<b><i>Critical Resource Planning Process</i></b> James Henderson, General Dynamics Electric Boat, and Christopher Ligetti, Penn State Applied Research Laboratory
4:00 p.m.	<b><i>Mechanical Property and Fabrication Cost Comparison of Purchased HFRW Structural Shapes vs. GMAW Fabricated Structural Shapes</i></b> Nancy Porter, EWI, and Bob Gillies, General Dynamics Electric Boat	<b><i>Automated Design of Fluid and Power Distribution Systems for an Affordable Fleet</i></b> Patrick Rourke and Lyn Merritt, Anchor Technology Inc.	<b><i>F-35 Assembly Metadata Integration</i></b> Bobby Mashburn, ATI	<b><i>Mobile Computing Design-Build Process</i></b> Andrew DiFusco and Kyle Sylvia, General Dynamics Electric Boat
4:30 p.m.	<b><i>A New Look at Fabricated Structural Shapes</i></b> Paul Blomquist, EWI, and Mark Smitherman, Concurrent Technologies Corporation	<b><i>Knowledge Provisioning to Improve First Design Quality</i></b> Patrick David, SSI USA	<b><i>Efficient Identification of Plate Defects</i></b> Kyle Reasbeck, Concurrent Technologies Corporation, and Bonnie Jordan, Newport News Shipbuilding	<b><i>Digital Thread Shipbuilding – Supplier Interface</i></b> Brett Cash, Newport News Shipbuilding

**ShipTech 2018**  
**Concurrent Technical Sessions**  
**POSTERS**

	Joining Technologies Emerald Ballroom	Product Design Emerald Ballroom	Production Processes Emerald Ballroom	Shipbuilding Processes & Technologies Emerald Ballroom
<b>POSTERS</b>	<p><b><i>Development of Portable Friction Stir Welding</i></b>  Mark Smitherman and Tim Freidhoff, Concurrent Technologies Corporation, and Anthony Reynolds, University of South Carolina</p>	<p><b><i>False Deck Panel Improvement</i></b>  Mark Snider, ATI, and Terri Merdes, Penn State Applied Research Lab</p>	<p><b><i>Sheet Metal Modernization</i></b>  Jonathan Finley, General Dynamics Electric Boat, and Daniel Finke, PhD, Penn State ARL</p>	<p><b><i>Insulated Bus Pipe, Revolutionary Alternative to Cables for Shipboard Power Distribution</i></b>  Daniel Georgiadis, Hepburn and Sons, LLC</p>
	<p><b><i>Implementation of a Low-cost, High-speed Welding Process for Zero Distortion Welding for Shipbuilding</i></b>  Jerald Jones, EnergynTech, Inc./Bollinger Shipyard/Bath Iron Works Shipyard; Valerie Rhoades, EnergynTech, Inc.; and James Dydo, Gatekey Engineering</p>			<p><b><i>Meeting the New ISO Knowledge Management Requirement</i></b>  Gregory Burek, Auros Knowledge Systems; Lisa Elles, Hepinstall Consulting Group, Inc.; and Victoria Dlugokecki, Dlugokecki Consulting</p>
	<p><b><i>Use of Modeling in the Development of the HiDep Distortion-Free Welding</i></b>  James Dydo, Gatekey Engineering, Inc., and Jerald Jones, EnergynTech, Inc.</p>			

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## Concurrent Technical Sessions

### PRESENTATIONS

**Wednesday, March 28**

	Additive Manufacturing Crystal Ballroom - AB	Innovative Technologies Crystal Ballroom - C	Mixed Reality Technologies Crystal Ballroom - D	Robotics Crystal Ballroom - EF
Session Co-chairs	<p>Dr. Melissa Klingenberg Penn State Applied Research Laboratory, Institute for Manufacturing &amp; Sustainment Technologies</p> <p>Carrie Davis Naval Surface Warfare Center, Carderock Division</p>	<p>Robert Akans Concurrent Technologies Corporation, Navy Metalworking Center</p> <p>Jonathan Osborn and Ryan Frankart Advanced Technology International, Composites Manufacturing Technology Center</p>	<p>Paul Huang Office of Naval Research</p> <p>Jamie Breakfield Ingalls Shipbuilding</p>	<p>Erik Oller Office of Naval Research</p> <p>Ken Brill General Dynamics Bath Iron Works</p>
11:00 a.m.	<p><b><i>Additive Manufacturing Technology for the Structural Reinforcement of Pipes</i></b> Jay Rozzi and Nicholas Kattamis, Creare LLC</p>	<p><b><i>Demonstration, Transition, and Implementation of Reverse Sensitization for 5456 Aluminum Alloy on CG-Class Navy Ships</i></b> Robert Mason, Mark Smitherman, and Robert Akans, Concurrent Technologies Corporation</p>	<p><b><i>Improving Workforce Development Using Augmented Reality Technology: An Instructional Design Perspective</i></b> Mia Joe, Newport News Shipbuilding</p>	<p><b><i>Computer-aided Robotics - Welding (CAR-W): Leveraging Robots to Drive Fleet Affordability</i></b> Mark Schaub and Jeff Penoyer, Wolf Robotics, LLC – A Lincoln Electric Company</p>
11:30 a.m.	<p><b><i>Additive Manufacturing (3D Printing) for Maritime Applications – Materials Engineering Considerations</i></b> Yvonne Traynham and Ryan Dix, U.S. Merchant Marine Academy</p>	<p><b><i>Improved Corrosion Resistance of Aluminum Alloys Containing Cerium</i></b> David Weiss, Eck Industries, Inc.</p>	<p><b><i>ShipScan – Low-cost, High-availability Ship Scanning and Procedures</i></b> Patrick David and Patrick Roberts, SSI USA</p>	<p><b><i>Robotic Welding of Complex Structures</i></b> Mark Smitherman and Brock Golesich, Concurrent Technologies Corporation</p>
12:00 p.m.	<p><b><i>Additive Manufacturing in Afloat Environments</i></b> Justin Rettaliata, NAVSEA05</p>	<p><b><i>Lifetime Enhancement of Propulsion Shafts Against Corrosion-Fatigue by Laser Peening</i></b> Lloyd Hackel and Jon Rankin, Curtiss Wright-Metal Improvement Company</p>	<p><b><i>An Augmented Reality Approach to Increasing the Efficiency of Shipyard Construction Processes</i></b> Kevin Lesniak and Conrad Tucker, Penn State University</p>	<p><b><i>Manufacturing USA - Advanced Robotics for Manufacturing (ARM) Innovation Institute</i></b> Dr. Gregory Hudas, DoD PM, ARM-MII (Manufacturing USA), Army-RDECOM-TARDEC</p>
12:30 p.m.	<p><b><i>Requirements Framework for the Fabrication and Inspection of Naval Parts Using Additive Manufacturing</i></b> Daniel Hebert, John Ralls, and Kyle Wade, Newport News Shipbuilding</p>	<p><b><i>Hatchable Cold Spray System for Onboard Repair of Navy Components</i></b> Timothy Eden, Penn State Applied Research Laboratory; John Albrecht, IMF Bangor; and Janice Bryant, NAVSEA 04X3</p>	<p><b><i>ARGos: The Use of Augmented and Virtual Reality Technologies to Optimize Cable Installation</i></b> Maurissa D'Angelo, D'Angelo Technologies, LLC</p>	<p><b><i>Using 7DoF Real-time Machine Control to Reduce Costs and Manufacturing Complexity of Large-scale Fabrications</i></b> Joel Martin, Hexagon Manufacturing Intelligence</p>

**ShipTech 2018**  
**Concurrent Technical Sessions**  
**POSTERS**

	Additive Manufacturing	Innovative Technologies Emerald Ballroom	Mixed Reality Technologies	Robotics Emerald Ballroom
<b>POSTERS</b>	<i>(No posters in this session)</i>	<p><b><i>Laser Peening Surface Treatment to Inhibit Stress Corrosion Cracking on Sensitized AL 5XXX Alloys</i></b>  Lloyd Hackel, Montu Sharma, and Matt Walter, Curtiss Wright-Metal Improvement Company</p> <p><b><i>Laser Peening to Arrest Stress Corrosion Cracking of Sensitized 5000 Series Aluminum</i></b>  Lloyd Hackel, Jon Rankin, and Jack Rybak, Curtiss Wright-Metal Improvement Company</p>	<i>(No posters in this session)</i>	<p><b><i>Are Shipyards Ready for a Remote Welding Workforce?</i></b>  Connie Reichert LaMorte and Paul Blomquist, EWI</p>
				<p><b><i>Expeditionary Robotic Instrumental Payloads</i></b>  Kyle Woerner, Pearl Harbor Naval Shipyard</p>