

# Ship Design & Material Technologies Panel Meeting Logistics

October 29<sup>th</sup>, 2020

Virtual



# Welcome & Meeting Logistics

- Welcome to our SDMT Virtual meeting!
- Focus of meeting is NSRP Project Updates.
- Each project will have 30min time slot to provide update, including time for questions.

Time	Presentation	Speaker
<b>11:00 Eastern 8:00 Pacific</b>	<b>Convene Meeting/ Meeting Logistics</b>	
11:00 Eastern 8:00 Pacific	NSRP Program Update	Nick Laney, ATI
11:15 Eastern 8:15 Pacific	Chair Update and Panel Business	Monika Skowronska, NASSCO
11:30 Eastern 8:30 Pacific	Laser Scan to CAD Analysis	Cody Griffith, NNS
12:00 Eastern 9:00 Pacific	Simulation Workflow Development for Additive Manufacturing	David Najera, ATA
12:30 Eastern 9:30 Pacific	MELD: Scaling Up 3D Printing for Castings	Wes Downs, NASSCO
1:00 Eastern 10:00 Pacific	Knowledge Provisioning to Improve and Simplify ABS Digital Compliance	Greg Burek, Auros
1:30 Eastern 10:30 Pacific	Fire Resistant Watertight Doors	Mike Poslusny, Ingalls
2:00 Eastern 11:00 Pacific	Ship Structural Design Optimization (SSDO) for Improved Producibility and Enhanced Life-Cycle Performance	Tobin McNatt, Maestro Marine
<b>2:30 EST 11:30 Pacific</b>	<b>Adjourn</b>	

# Ship Design & Material Technologies Panel Chair Report

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# NSRP SDMT Leadership

- Monika Skowronska: Panel Chair
- Vicky Dlugokecki: Panel Vice Chair
- Dan Sfiligoi: Major Initiative Team Lead
- Alicia Harmon: Major Initiative Assistant Team Lead

## Ship Design & Material Technologies

Chair: **Monika Skowronska**  
(NASSCO)  
Vice Chair: **Victoria Dlugokecki**  
(Naval Consultant)

## Ship Design & Material Technologies

Lead: **Dan Sfiligoi** (NASSCO)  
Asst Lead: **Alicia Harmon** (NNS)

# SDMT Specific Focus Areas:

- Improving technologies in early ship design.
- Improving integration of all shipboard systems and undefined mission systems during design.
- Improvement of design technologies, including design and analysis tools, to reduce costs in production engineering and construction.
- Investigate material technologies to improve material performance, standardization, and overall material processes while reducing part count and total ownership costs during all phases of ship design and construction.
- Reduction of re-work in all areas of ship design and construction.
- Improving specifications and standards and investigating new technologies that can be incorporated into Rules or technical requirements documents for both commercial and naval shipbuilding programs.
- Collaborate and partner with other NSRP panels on topics and initiatives that encompass the other panel focus areas.

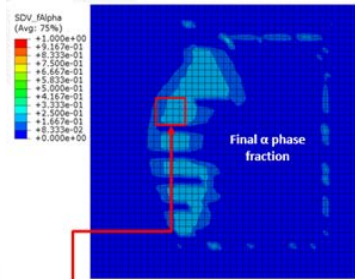
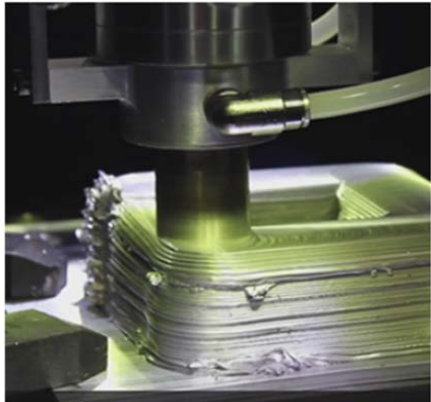
<https://www.nsrp.org/sdmt-panel/>

# Current Panel Activities

- Panel Project down select vote complete.
  - 22 projects submitted.
  - Top 3 selected to go on to ECB vote in November.
- SNAME Poster Sessions- thank you for participating!
- Panel Project Selection:
  - 17-18 November
- NSRP Day at NAVSEA:
  - 5 November - practice session
  - 19 November - virtual poster sessions

# Current SDMT Projects

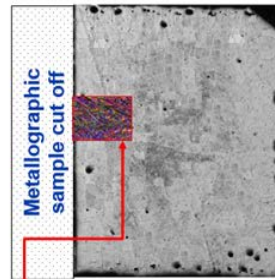
1. Scaling Up of 3D Printed Castings (NASSCO)
2. Simulation Workflow Development for AM (ATA)
3. Standardization of Watertight Hatches and Scuttles (Ingalls)
4. ASTM F1387 Testing for Mechanically Attached Fittings (BIW)



FE Model

Phase content of  $\alpha'$  almost 100% everywhere else

$\beta$  negligible



Courtesy of TWI

Experiment

Local  $\alpha$  phase content 15%

Phase content of  $\alpha'$  almost 100% everywhere else

No  $\beta$  observed



# 22 Panel Projects submitted this year

No.	Project lead	Project name
1	Electra Watch	Development of an Additive Manufacturing Capability for CuNi Seawater Exchangers
2	EWI	High Duty Metal Additive Manufacturing Using Cryogenic Thermal Control
3	EWI	Feasibility Study on Applications of Machine-Learning (ML) Based Control of Springback in Pipe Bending (Joint PPPF)
4	Nassco	Standardization of UxV Shipboard Interfaces (Joint SWSI)
5	Nassco	Cyber Secure Design Collaboration (Joint BT)
6	Newport News	Development of NDT Calibration Block for Directed Energy Deposition Additive Manufacturing Processes
7	Newport News	Artificial Intelligence (AI) Developed CAD Models (Next Generation Capabilities)
8	Newport News	Application of Tulip Studs (Joint PPPF)
9	Auros	Knowledge Provisioning to Improve and Simplify Preliminary Design (Joint BT)
10	ABS	Design and In-Service Considerations for Aluminum Sensitization on High Speed Vessels
11	Auros	Using Artificial Intelligence (AI) to Simplify Provisioning of Navy Standard Requirements (Joint BT)
12	SSI	Automated Label Plate Generation
13	ABS	Digital Twin Maturity Model Development & Implementation Guidance (Joint BT)
14	ATA	Data Fusion for Performance Prediction of Additively Manufactured Parts (Joint BT)
15	Ingalls	Comprehensive Aircraft Tie-Down (ACTD) Strength and Corrosion Evaluation
16	Ingalls	Advanced Insulation Material Assessment
17	Ingalls	Next Generation Remote Operation Gear for Valves
18	SSI	Digital Drawing Delivery
19	Taylor Devices	PUMPKIN Mount technology
20	Newport News	Model Based Requirements Management (Joint BT)
21	D'Angelo Technologies	Fiber Optic Sensor for Structural Shipboard Monitoring (Joint ET)
22	STI Maine Firestop	Temporary Firestop during Construction (Joint ET, PPPF)



# Universal Panel By-Law



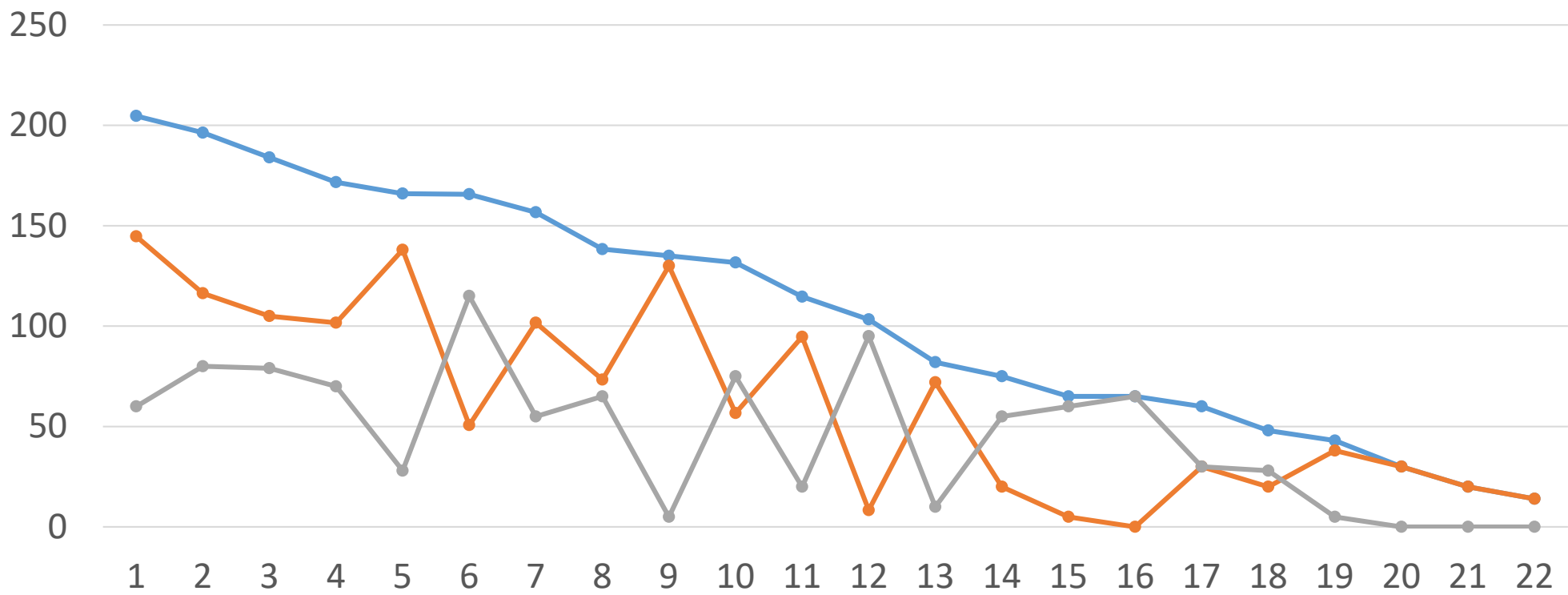
1. At minimum, panel voting membership will include all of the member shipyards.
2. Each organization gets only **ONE vote**.
  - If an organization has a qualified voting member in a NSRP leadership position (Panel Chair, Panel Vice Chair, or Major Initiative Team Leader) the organization will have an additional vote (not to exceed **TWO votes**).
3. Except for member shipyards, organizations must meet panel membership requirements to propose a panel project or vote.
  - SDMT's Panel Membership Requirements:
    - For members other than the member shipyards, if multiple members belong to the same organization, this organization receives **ONE vote**
    - To become and remain a member, an individual must attend two meetings, physically or virtually, within a two-year period and indicate to the Chair that s/he wishes to become a member.

# 3 Top Projects Selected

- Each voting organization got 100 points to distribute, one project could get at most 50 points.
- 10 out of 11 shipyards voted, 19 members total organizations voted.

No.	Project Name	Project Lead
1	Automated Label Plate Generation	SSI
2	Using Artificial Intelligence (AI) to Simplify Provisioning of Navy Standard Requirements (Joint BT)	Auros
3	Development of an Additive Manufacturing Capability for CuNi Seawater Exchangers	Electra Watch
Joint BT	Digital Twin Maturity Model Development & Implementation Guidance	ABS

# Vote Distribution



- Total Number of Points each project recieved
- Total number of points from shipyard members
- Total number of points from non-shipyard memebre



# Thank you for attending!

- **Upcoming Meetings/Events**

- 17-18 November – Panel Project Selection/ECB Meeting
- 19 November – NSRP Day at NAVSEA
- 20 November – ASNE Technology, Systems, and Ships