

Electric Boat Composites

NSRP Product Design & Material Technologies (PDMT) Panel Meeting

January 31 – February 1

Dr. Jeffrey C. Hall
General Dynamics Electric Boat

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Current Composite Applications

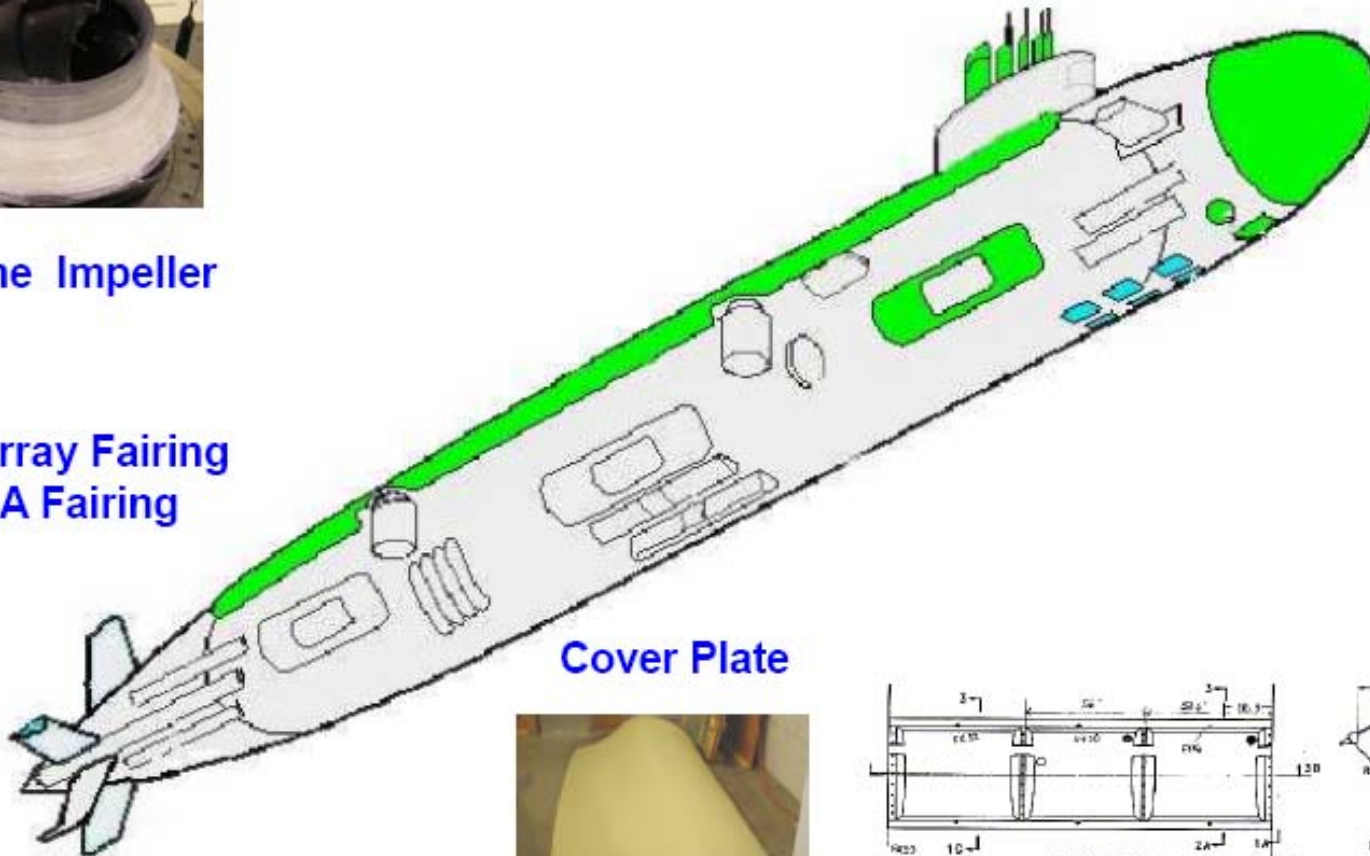


Marine Impeller

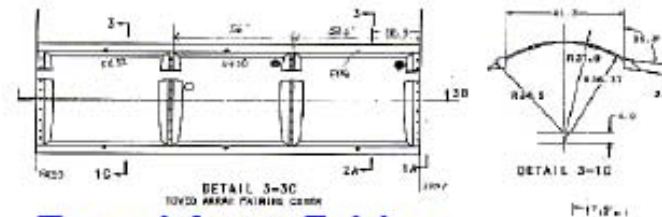


Bow Dome

- Other
- Chin Array Fairing
 - LWWAA Fairing
 - CML



Cover Plate

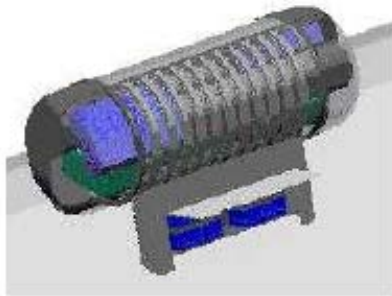


Towed Array Fairing

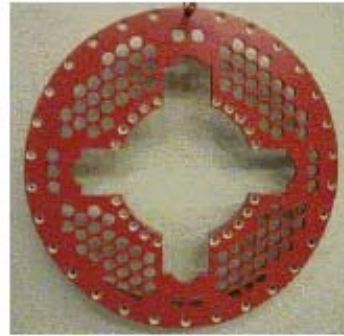
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GENERAL DYNAMICS
Electric Boat

Potential Composite Applications



ONR Composite Storage Module



Composite Hull Strainer Plate



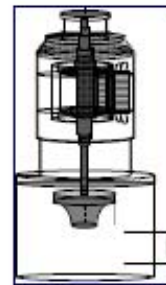
Composite Advanced Sail



Submerged Motor



Ducting



Motor Parts

EB Materials Vision & Requirements

- **Vision**
 - *A large database of affordable materials is readily available to meet future performance needs for rapid design integration with few technical barriers.*
- **Typical New Material Requirements**
 - *Validated dynamic material performance characterization*
 - *ONR/UConn research addressing for composites*
 - *Validated joining technology*
 - *Joints are typically the most critical part of design with new materials*
 - *Satisfy fire, smoke, and toxicity requirements*
 - *EB 1407 Resin meets MIL-STD-2031*
 - *Damage/defect detection and assessment methods*
 - *Need cost effective methods of detecting and assessing damage and defects in new materials*
 - *Validated repair procedures to fix damage and defects detected*
 - *Acceptable fatigue/fracture performance*
 - *30+ year life performance typically required*
 - *Low cost fabrication*