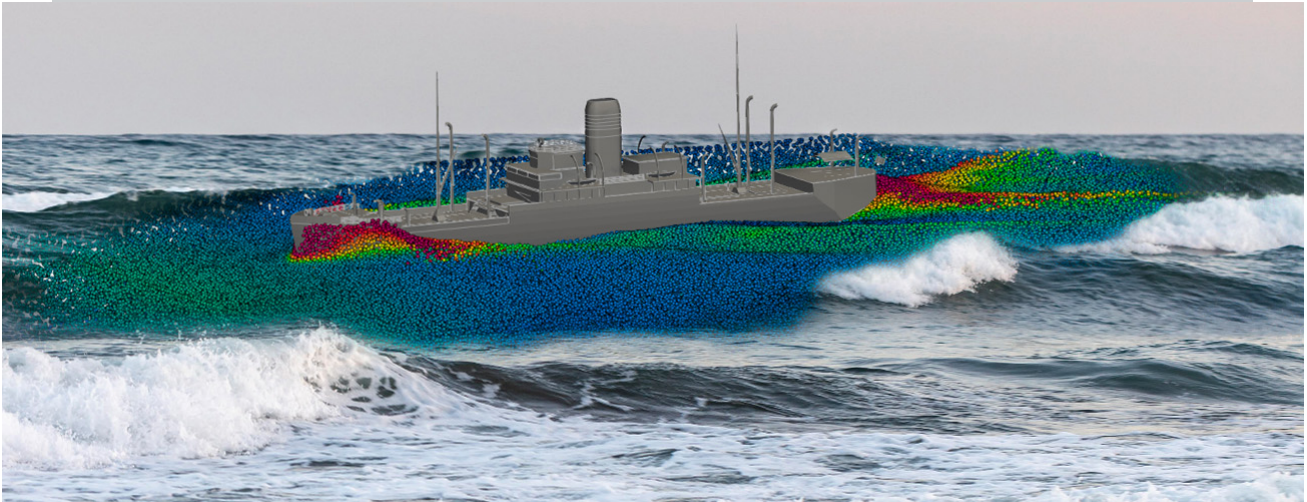


New applications for the maritime industry at the joint Fraunhofer stand



Hamburg, 26 August 2024 - [Five Fraunhofer Institutes](#) will be presenting their current research projects live at this year's SMM, the world's leading trade fair for the maritime industry, from 3 to 6 September in Hamburg. In Hall B6 at Stand 327, they will be showcasing solutions that support shipowners, shipyards, ports, logistics service providers and the maritime supply industry in fulfilling their tasks. Fraunhofer research is characterized by individually tailored solutions and practical benefits. Under the motto 'Excellence in Maritime Research', the exhibits cover a wide range of topics:

- AR/VR technologies in nautical systems
- Mobile ship simulator for demonstrating innovative visualizations
- Solutions for lightweight material construction for ships
- Intelligent shipyard planning approaches to increase flexibility
- Innovative simulations of highly dynamic processes and systems
- Process monitoring using smart, energy-independent sensors

The **Fraunhofer Centre for Maritime Logistics and Services CML** will be showcasing developments for autonomous maritime technologies, the use of artificial intelligence and software solutions for crew planning. This year's highlights: the mobile ship simulator, together with AR/VR developments, will provide a test field for the shore-based remote support of maritime units. The CML will also be demonstrating live how image recognition can be used profitably on the terminal. By recognizing damage, for example, visual container inspection processes can be carried out much more efficiently. Automatic speech recognition demonstrates the possibilities of artificial intelligence (AI) in the maritime environment: AI helps to transcribe radio messages that are difficult to understand due to background noise and dialects and also makes communication accessible afterwards.

Researchers from the **Fraunhofer Institute for Industrial Mathematics ITWM** present the MESHFREE tool, which simulates complex processes - such as moving ships and their interaction with waves, tank sloshing, spray cleaning, flooding or floating bridges - with great time savings and therefore cost-effectively. The grid-free method is superior to conventional software, which often does not map such highly dynamic processes satisfactorily. This allows us to identify optimization potential at an early design stage. MESHFREE was awarded the Joseph von Fraunhofer Prize 2024 for this.

Maritime production is the DNA of the **Fraunhofer Institute for Large Structures in Production Engineering IGP**. For more than 25 years, the institute has been researching how to make production for the maritime industry more flexible, efficient, economical and ecological. Two innovative solutions will be presented at SMM: an intelligent shipyard planning approach to increase flexibility and a bonded holder system with shipbuilding approval that replaces welded holders and enables more efficient production processes.

The **Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM** offers research services in the field of maritime technologies for the shipbuilding and offshore industry. Development focuses on corrosion protection, functional coatings and bonding processes as well as the development of reinforced polymer materials with specific properties and customized joining techniques. In addition to metallic materials, lightweight fibre-reinforced composites are increasingly being used in lightweight shipbuilding. Challenges arise here on the one hand with regard to safe behaviour in the event of fire and on the other hand with regard to joining techniques suitable for the material. Solutions are shown using a ship's staircase and deck bonding demonstrator.

Interdisciplinary teams of experts from the **Fraunhofer Institute for Structural Durability and System Reliability LBF** will present new methods of material characterization of cast, welded or printed components and application-related test and design methods for metallic materials and structures in maritime technology. Evaluating the influence of material quality, joints, corrosive media (e.g. methanol) or hydrogen on the strength behaviour of materials and components creates durable and sustainable components and systems. Companies benefit from efficient manufacturing processes and receive safe, reliable products. The powerful and customizable methods from Fraunhofer LBF for noise and vibration reduction using VAMM - vibroacoustic metamaterials - or acoustic black holes lead to a reduction in underwater noise. They protect the environment and can be produced economically.

The researchers are looking forward to your visit at stand 327 in hall B6. Take the opportunity to ask your questions and try out our solutions for yourself!

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The MESHFREE software simulates many processes in the shipping industry