

стойчивость, гидродинамика, маневренность, ходкость и автономность мореплавания, в том числе за счет эффективного использования природоподобных технологий.

Кроме того, увеличилось число эффективных технических исполнений утилитарных судов путем реализации в прибрежных морских акваториях офшорных технологий. Одной из важнейших тенденций совершенствования судов является повышение энергоэффективности их судовых энергетических установок на основе внедрения перспективных инноваций, применения энергоемких и экологически чистых топливно-энергетических носителей.

В альтернативной топливной энергетике наметились точки роста электрических, особенно водородных, и СЭУ на сжиженном природном газе уже не экспериментального, а серийного применения. Несомненными точками роста российского судостроения (как в сегменте кораблестроения, так и сегменте гражданского судостроения) являются успехи, достигнутые главным образом за счет оптимизации системы исследований, проектирования и постройки судов при успешном взаимодействии таких важнейших участников отрасли, как Крыловский государственный научный центр и Объединенная судостроительная корпорация. ■

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## 54 REVIEW

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# Most Significant Shipbuilding Innovations 2021

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### key words

shipbuilding, research, design, manufacturing, structural materials, technologies, environmental safety, energy efficiency, competitiveness

Providing about 80 % of the world trade turnover and huge volumes of passenger transportation, shipbuilding, in an effort not to lose its competitive market advantages, is constantly improving its design and technological solutions. They are based on innovations that provide leadership in the short and long term for the breakthrough development of this most material-intensive industry of engineering, which supplies water rolling stock to transport shipping and creates a defense ship potential of military seafaring powers. The nomenclature of ships and ships is huge and each of their types has design and technological features and a variety of dimensions that require in-depth research on the possibilities of finding optimized design and construction results. Let's try to evaluate their effectiveness on the example of the analysis of shipbuilding improvements available in the technical literature in 2021.

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