Global Technology Trends related to Naval Science and Engineering

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Engineering is continually changing. In the second decade of the millennium, new technologies are fusing the physical, digital, and biological worlds in what has been called the Fourth Industrial Revolution. Today's researchers in marine and naval science stand on the cusp of dramatic advances in materials, communications and connectivity, artificial intelligence to augment human capabilities, information, robotics, energy, control, automation, manufacturing, simulation, etc. Researchers must be able not only to thrive in an environment of rapid technological change and globalization but also to work on interdisciplinary teams, since research is being done at the intersections of engineering disciplines, and successful researchers must be aware of developments and challenges in areas that may not be familiar to them. The talk will present an overview of technology trends for disruption in short and medium terms related to naval science and engineering, including additive manufacturing, everywhere computing, predictive analytics, unmanned and autonomous vehicles, advanced materials, mixed reality, everywhere sensors, artificial intelligence and, being central to much of science, the building of mathematical models to represent complex processes. A new age of sustainable prosperity can be propelled by these advances, through technological innovation coupled with its thoughtful application and use for the benefit of society.