



DEFENSE TECHNOLOGY MONITOR

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Related Categories: Military Innovation; Missile Defense; China; Europe; Israel

ISRAEL DEVELOPING ANTI-HYPERSONIC CAPABILITIES...

Russia, China, and Iran have been developing offensive hypersonic weapons for several years now, posing growing challenges for traditional missile defense systems designed to intercept missiles that follow ballistic trajectories. In response, like its U.S. counterparts, Israel's Rafael defense conglomerate is currently developing a hypersonic missile defense system named "Sky Sonic." While specifics on the new system have been scant so far, the technology reportedly has been in development for three years. The development, in turn, is being spurred by real world events. Namely, the war in Ukraine has showcased the need for robust missile defenses to defend against rockets and unmanned drones, and Israel's defense industry sees hypersonic defense as providing necessary protection for the Jewish state as well as expanded opportunities in the European market. The "Sky Sonic" announcement was made ahead of the Paris Air Show, a prominent forum to showcase state-of-the-art defense sector systems. (Jerusalem Post, June 14, 2023)

...AND A SEA-BASED SYSTEM

At long last, Israel's vaunted Iron Dome missile defense system is available at sea (see Defense Technology Monitor no. 24 for additional information). According to the Israeli Ministry of Defense, the sea-based Iron Dome variant, known as C-Dome, has successfully completed a battery of tests and been deployed on the country's Sa'ar 5 corvettes. Similar to the land-based version, the platform is designed to counter drones, cruise missiles, and rockets. Reportedly, "the success of the tests is another significant milestone in the array's development to counter existing and future threats in various combat arenas." (Breaking Defense, June 7, 2023)

NURTURING AI TECHNOLOGY

Artificial Intelligence (AI) technology is advancing quickly, but is it lucrative? MIT's Sloan Management Review and the Boston Consulting Group recently found that only 11% of companies harnessing AI have reaped the appropriate financial dividends. Apparently, AI isn't living up to all the hype. The problem, it appears, is "nature versus nurture." According to the report, when AI is developed in a heavily controlled environment in the same manner as traditional software, it is much less capable when deployed in the real world. The authors of the study cite ChatGPT and Tesla software as the model for allowing AI systems to mature the way you would a child, allowing the program to learn from mistakes with constant correction in the feedback loop. These systems are constantly evolving and learning from real world data — though the authors caution that guardrails are necessary for proper development. (Fortune, June 14, 2023)

BRITAIN SEEKS QUANTUM SENSORS

The Royal Navy is hoping for a big upgrade as it looks to add quantum sensors to its fleet. Specifically, the service hopes to counter recent advancements in nuclear submarine technology, particularly the stealthiness of naval craft. Here, British officials say, quantum technology could serve as an equalizer, with quantum sensing being able to identify and locate enemy submarines with high precision in nanoseconds. (see Defense Technology Monitor no. 85 for additional reference). Several companies, including Fujitsu, Toshiba, and BT, among others, are now working on numerous applications for quantum technology and the UK is hoping to capitalize on their research. (The National News, June 14, 2023)

BEIJING'S NEW DEFENSE AGAINST DIRECTED ENERGY WEAPONS

In the hunt for defenses against hypersonics, directed energy weapons are generally thought of as a cost-effective solution. However, China may have changed the calculus with something as simple as a coat of paint. Chinese researchers at the Beijing Institute of Technology have reportedly developed a low-cost industrial resin mixture, boron phenolic resin (BPR), which can guard drones and missiles from directed energy attack. According to a peer-reviewed study, researchers found that in directed energy tests of the resin, "over time, white material appeared in the ablated area of BPR-1, but the heat impact area remained relatively intact with no obvious peeling or damage to the coating." If accurate, the breakthrough is particularly damaging to the U.S., given that China is a mass producer of BPR and the substance is inexpensive. (South China Morning Post, June 12, 2023)