

# Suncoast Scientific Announces Patent for New Metamaterial Oxide Capacitor

*Suncoast Scientific announced that its President and CTO, Hulya Demiryont, PhD, has been granted a US patent for a ground-breaking metamaterial oxide capacitor*

ST. PETERSBURG, FLORIDA, USA, December 6, 2023 /EINPresswire.com/ -- Suncoast Scientific Announces [Patent](#) for New Metamaterial Oxide Capacitor Accomplished, award-winning physicist Dr. Hulya Demiryont is granted US Patent 11791096-B1 for revolutionary technology with wide-ranging applications



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*Dr. Demiryont.*

Suncoast Scientific today announced that its President and Chief Technology Officer, Hulya Demiryont, PhD, has been granted a US patent for a ground-breaking metamaterial oxide capacitor (MOC). The capacitor is made from an innovative new material, created by Dr. Demiryont using vacuum-deposition thin film technology.

“This is the culmination of decades of research and contribution to my field at large,” said Dr. Demiryont. “The material used for this capacitor is akin to finding a new type of oxide, and has the potential to revolutionize the creation, performance, and application of multitudes of technology.”

Suncoast Scientific’s patented MOC has a 5 Farad/cm<sup>3</sup> huge volumetric capacitance, 70 times the energy capacity of a supercapacitor, yet is smaller than the size of a pin. It is a lithium-free, electrolyte-free, self-charging “green” capacitor, thus, it is wearable, implantable, and flexible but can be linked in parallel to create an even larger energy source. Furthermore, its dielectric permittivity can be changed by electric fields thus allowing MOC to be wirelessly controlled by AC and DC. As an active capacitor, it has a frequency-selective volume, with the ability to switch between a conductor and insulator.

The MAC has wide-ranging application potential across many industries. Examples include:

- Mini, micro, and nanosatellites and drones
- Pacemakers, hearing aids, and other health technology
- Technology for electrochromic goggles, visors, and cell phones
- Heatable textiles for the military, aerospace, and fashion industries

- Switchable antennae
- EMI shielding surfaces and RADOM
- Miniature circuit element technology as a 2-terminal tunable varactor, voltage-controllable capacitor that can electrically change capacitance and frequency regions[BK2]
- Resistive random-access memory (RAM) for artificial intelligence and machine learning applications

Dr. Demiryont is an accomplished physicist with a 60-year academic and entrepreneurial career. She has founded and led multiple companies, published dozens of peer-reviewed academic articles, and won numerous awards, including the Quantum Leap Award, the Ford Motor Company Eagle Award, and the Turkish Technology Grand Award.

#### About Suncoast Scientific

Suncoast Scientific was founded by Dr. Hulya Demiryont, who has led multiple companies and published dozens of peer-reviewed academic articles. She is also an eight-time winner of Ford Motor Company's Innovation Award for her work in Ford's glass division. Dr. Demiryont holds over 30 patents. Suncoast Scientific is based on St. Petersburg, Florida.

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