

Department of the Navy SBIR/STTR Transition Program

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ONR Approval #

Topic # NRL-2

Three-Dimensional Zinc Electrode Architectures for High-Performance Batteries

U.S. Naval Research Laboratory

WHO

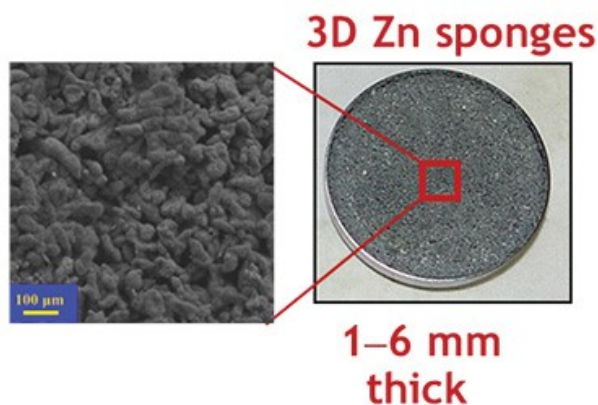
SYSKOM: ONR

Sponsoring Program:

Transition Target:

TPOC:

Other transition opportunities:



<https://www.nrl.navy.mil/techtransfer/available-technologies/energy/three-dimensional-zinc-electrode-architectures-for-high-performance-batteries>

WHAT

Operational Need and Improvement:

Specifications Required:

Technology Developed: Zinc-based batteries offer a safe, inexpensive alternative to fire-prone lithium-based batteries, yet have been historically limited by poor rechargeability. The Naval Research Laboratory (NRL) has eradicated this centuries-old roadblock by developing a 3D zinc (Zn) “sponge” electrode architecture comprising interpenetrating networks of Zn scaffolding and void space. The design yields superior electrochemical properties when cycled in alkaline electrolytes. This breakthrough transforms the future capabilities and performance of the entire family of Zn-based alkaline batteries. NRL has demonstrated fully rechargeable nickel–zinc prototype cells that challenge Li-ion performance, but which use aqueous-based cell chemistry that is inherently safer than the nonaqueous liquids used in Li batteries, thereby meeting the goals for a robust, energy dense, and safer battery.

Warfighter Value:

WHEN

Contract Number: T2-ORTA-NRL-2

Milestone	Risk Level	Measure of Success	Ending TRL	Date
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HOW

Projected Business Model:

Company Objectives:

Potential Commercial Applications:

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