

SBIR 06.2 PHASE I - AWARD DETAILS**ORGANIZATION**

AMRDEC (M)

TOPIC NUMBER

A06-021

CONTRACT NUMBER**YEAR OF AWARD****AWARD START DATE****AWARD COMPLETION DATE****PROPOSAL NUMBER**

A062-021-2988

TITLE

A Novel Integrated Model of Missile and Munition Thermal Batteries

PROJECT MANAGER

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COMPANY

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Minority Owned: No
Woman Owned: No
Veteran Owned: No
Number of Employees: 5

KEYWORDS

Thermal batteries, electrochemical and structural modeling

ABSTRACT

Thermal batteries are the power source of choice for many weapon systems. While thermal batteries offer designers several key advantages, the design and integration of this technology into new applications suffers from two significant impediments. The first is the lack of suitable design tools, and the second is the time-consuming and expensive effort necessary to qualify a new battery design through testing. Both of these factors cause significant lead-time and cost impacts. To address these challenges, Erigo proposes to develop a comprehensive computer model for thermal batteries. This program will enable detailed mechanical, chemical and thermal simulation of thermal batteries. The proposed development plan leverages on-going thermal battery modeling work. Our program also leverages the capabilities of a state-of-the-art, commercial, finite element modeling package specifically intended to model phenomena from multiple engineering disciplines.

BENEFITS

The thermal battery modeling code will reduce the need for trial-and-error testing of prototype batteries, promote a fundamental understanding among battery designers of key phenomenology and tradeoffs, and will support optimization of new battery designs.