National Institute of Standards and
Technology
Department of Commerce

SBIR

SMALL BUSINESS INNOVATION

RESEARCH PROGRAM

PHASE I and PHASE II

AWARDS FOR FISCAL YEAR 2023

INTRODUCTION

Abstracts of Awards for Fiscal Year 2023 SBIR Program

Note: Certain non-ASCII characters may not be represented accurately in this document. In cases where there may be doubt, please direct your questions to sbir@nist.gov.

Fiscal Year 2023 List of Awardees

Award Number	Company Name	Phase
70NANB23H247	Applied Research Transformation PLLC	Phase I
70NANB23H246	ACTOPROBE LLC	Phase I
70NANB23H243	ChemCubed, LLC	Phase I
70NANB23H255	Exabyte Inc.	Phase I
70NANB23H249	Framergy, Inc.	Phase I
70NANB23H256	ITA International, LLC	Phase I
70NANB23H253	QuantTera LLC	Phase I
70NANB23H251	Rownd, Inc.	Phase I
70NANB23H244	SygnaMap	Phase I
70NANB23H245	XMARK LABS LLC	Phase I
70NANB23H208	Criticality Sciences, Inc	Phase II
70NANB23H209	InfraTrac, Inc.	Phase II
70NANB23H212	Interlink Electronics, Inc.	Phase II
70NANB23H210	Julia Jean, LLC	Phase II
70NANB23H211	Tiami, LLC	Phase II

FY 2023 PHASE I AWARD

Actoprobe LLC (Albuquerque, New Mexico) $99,909
Scanning Probe Microscopy with Active Optical Probes: A Novel Approach to Measurements and Nanomanufacturing — a novel class of near-field optical probes that will allow precise optical characterization on the single-molecule and even submolecular scale, with applications in biotechnology, 3D printing and more.

Applied Research Transformation (Durham, North Carolina) $100,000
Sentinel 4.0TM: Measurement and Control System for 3DCP Interlayer Bond Strength — a commercial system for measuring and controlling the quality of bond strength in 3D-printed concrete under multiple environmental conditions.

ChemCubed LLC (Stony Brook, New York) $99,998
Printable Dielectric for Flexible Hybrid Electronics — a stretchable dielectric ink for printing flexible electronic circuits that could be used in wearable sensors, ultra-lightweight and flexible photovoltaics and other applications where flexibility is needed.

Exabyte Inc. (Walnut Creek, California) $99,895
Developing Data Standards for Accelerated Digital R&D of Semiconductor Materials from Nanoscale — data standards for accelerated research and development of semiconductor materials at the nanoscale.

Framergy Inc. (College Station, Texas) $100,000
A Novel Advanced Manufacturing Pathway for Direct Incorporation of Metal-Organic Frameworks in Polymeric Sponges — polymer composites that incorporate metal-organic frameworks (MOFs), for potential use as air and water filters for the treatment of harmful chemicals.

ITA International LLC (Newport News, Virginia) $99,292
Method for Quantifying Fitted Filtration Efficiency of Face Mask and Respirator Products — research leading up to development of a novel Fitted Filtration Efficiency (FFE) protocol to assess mask/respirator effectiveness for as-worn conditions.

QuantTera LLC (Tempe, Arizona) $99,977
Heterogeneous Millimeter-Wave Gallium Nitride Heterojunction Bipolar Transistor — development of high-performance radio frequency power amplifiers for use in wireless network communications systems.

Rownd Inc. (Raleigh, North Carolina) $96,644
Accelerating Adoption of Anti-Phishing Authentication Methods — analysis of the costs of moving from password-based to passwordless systems, understanding the various passwordless options and their merits, and recognizing the risks of maintaining passwordless methods to increase phishing-resistant systems.

SygnaMap (San Antonio, Texas) $100,000
Metabolite Reference Standards to Normalize Spatial Metabolomics Across Tissue Sections — an innovative computational platform to analyze data from spatial metabolomics — an emerging field of bioanalytical chemistry that aims to observe cellular biology with the greatest detail possible — for use in drug development.

Xmark Labs LLC (Barrington, Rhode Island) $100,000
Feasibility and Proof of Concept of a Dense, Low-Cost Network of Sensors Driving Intelligent Building Agents for Air Quality and Energy Control — establish the feasibility and proof of concept of a networked, affordable environmental sensor to enhance energy control and air quality regulation for commercial buildings.

FY2023 PHASE II AWARD

Criticality Sciences (Alexandria, Virginia) $400,000
Network Resilience to Cascading Failure — validation of data inputs and outputs and the development of methods to use metrics to support resilience investment and financing for critical infrastructure such as water and power utilities.

InfraTrac Inc. (Silver Spring, Maryland) $400,000
Analytical Quality Management for 3D-Printed Small Molecule Drugs — predictive modeling and near-infrared spectroscopy for 3D drug printing to enable customized doses, child-friendly formulations and easy-to-remember combination polypills.

Interlink Electronics Inc. (Irvine, California) $398,622
Materials for Gravure Printing of Chemical Gas Sensors — development of manufacturing techniques such as roll-to-roll printing to enable mass production of electrochemical gas sensors, as well as suitable chemistries for large-scale printed sensors and testing methods.

Julia Jean LLC (Irvine, California) $400,000
On-Chip Cold Cathode Electron Sources for X-Ray Generation and Imaging: Advancing a NIST-Patented Technology — a project to identify and compare the variables in a new lithography procedure for the best process for manufacturing the technology at scale.

Tiami LLC (Elk Grove, California) $399,979
Digital TV-Based Positioning for First Responder Tracking in GPS-Denied Environments — prototyping of a portable digital television-based positioning receiver and demonstration of the use of over-the-air Advanced Television Systems Committee (ATSC) 3.0 broadcast transmissions to improve indoor positioning and navigation where GPS coverage is not available.