

Birchrn Labs Introduces a Breakthrough New Rugged, High-Temperature Piezoelectric Ceramic Material

Lucas Marrero and Larry Liss of Birchrn Labs announce a breakthrough in rugged, high-temperature piezoelectric materials.

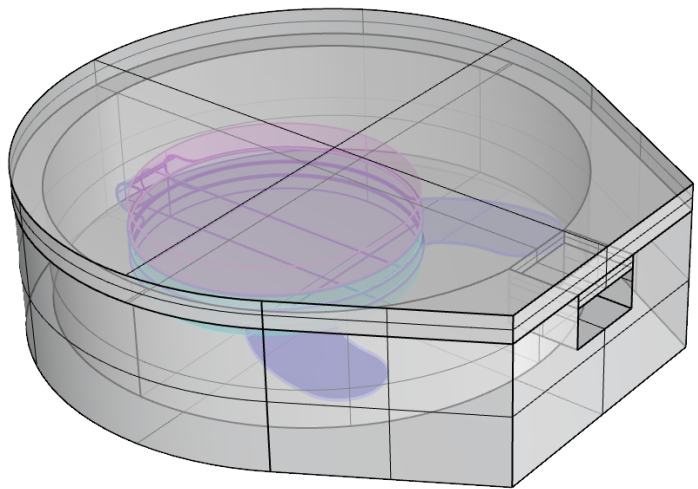
BIRCHRUNVILLE, PA, UNITED STATES, May 21, 2024 /EINPresswire.com/ -- Lucas is a graduate of the United States Naval Academy and has 176 carrier landings as part of his extensive aviation credentials. Larry is a highly decorated U.S. Army Captain, having flown more than 650 combat missions as a helicopter pilot, and was recently, in 2024, awarded a Silver Star for Gallantry for his service in Vietnam.

Birchrn Labs' new piezoelectric material, developed for, and in use by a Fortune 200 manufacturer, has the highest in class displacement, and temperature tolerance. This enables exceptional performance, especially when configured as a stack actuator. Described by customers as "rugged, and robust" it provides:

- Larger displacements
- Higher operating frequencies
- Longer duty cycles
- Greater force

This is all enabled by the material's high curie temperature, the known limiting factor for all piezoelectric materials. The closest competing materials operate continuously at 150°C. Birchrn Labs material operates continuously at 235°C and can be driven up 360°C. For this reason, Birchrn Labs actuators can be run harder, faster, and longer than those produced by the competition. This also makes our material suitable for, but not limited to, precision machining operations.

BIRCHRUN LABS



Vibration Sensor 3D Rendering, dimensions 8mm diameter, 5mm height



Birchrun Labs actuators can be run harder, faster, and longer than those produced by the competition.”

Current Customer

Every day, Birchrun Labs stacks run at over 1,200 Hz for extended periods, measured in weeks, with no degradation in performance. This represents a fraction of what is possible.

The comparison below shows two stacks of similar physical characteristics, 4.4” length, 1” diameter, both displacing

120 microns:

	Birchrun Labs	Closest Competitor
Operating Temperature	235°C	150°C
Max Temperature	>360°C	280°C
Blocking Force	4500N	4100N
Capacitance	1.18 µF	0.685 µF
Resonant Frequency	12.3 kHz	10 kHz

About Birchrun Labs:

Birchrun Labs, the technical affiliate of Birchrun Advisers, owns and develops solutions to technological barriers - often in conjunction with technical consultants and industry partners.

In addition to current piezoelectric offerings, our R&D team is applying our material to a self-powered, ultra-light vibration sensor/accelerometer, with a sensitivity of .37 mV/g, three times greater than the closest competing powered sensor. The high sensitivity combined with the unusually high resonant frequency of our material, over 100 kHz, means that our sensors can reliably detect high frequency vibrations long before any other sensor can.

We are working with early-stage clients and academic partners to test the device in an independent laboratory and in manufacturing facilities, specifically for early detection of bearing failures, projected deliverables in 2024.

Birchrun Labs is also developing a line of piezo drivers to enable practical use of high-voltage piezo materials outside of the manufacturing and laboratory environments. These applications include, but are not limited to compact, high-pressure, precision fluid pumps and hydraulic systems for unmanned systems and other electric vehicles.

Find more about our products on our website, contact us for a password at:

<https://www.birchrunlabs.com/contact>

A Veteran Owned Business

Lucas Marrero
Birchrun Labs
[email us here](#)

This press release can be viewed online at: <https://www.einpresswire.com/article/709306803>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2024 Newsmatics Inc. All Right Reserved.