

Partner search

Company: PolyJoule, Inc. CIF:	
Address: 46 Manning Rd Billerica, MA 01821 USA +1 617.765.4430	Contact: Mr. Eli Paster Position: CEO LinkedIn page (contact): https://www.linkedin.com/in/elipaster/ https://www.linkedin.com/company/polyjoule-inc/

Short Company presentation (R & D guidelines, international activities, etc.)

PolyJoule is an MIT spinout specializing in advanced conductive polymer technologies for energy storage. Its innovation has set new standards for safety, reliability, and scalability, addressing key industry challenges such as safety risks, short cell lifetimes, toxic materials, and high replacement costs.

The company evolved from early laboratory experiments to full industrial-scale production, progressing from milligrams to metric tons of material and from coin-cell tests to high-voltage, grid-connected systems.

Today, PolyJoule is recognized as the most commercially advanced conductive-polymer energy storage company in the world.

DESCRIPTION OF ITS TECHNOLOGY AND CAPABILITIES IN R & D (Products, technologies, applications, services, etc.)

PolyJoule’s research and development efforts are built on a proprietary conductive-polymer battery platform that replaces traditional metal-oxide chemistries with fully organic, non-toxic, and non-flammable materials. The company has developed a unique class of conjugated polymers capable of storing and releasing electrical energy with exceptional stability, enabling a battery architecture that eliminates thermal runaway, avoids the use of critical minerals, and maintains performance across extreme temperature

ranges. Its R&D work has advanced this technology from milligram-scale synthesis to metric-ton production, demonstrating a rare ability to scale new materials from laboratory discovery to commercial deployment.

The company's third-generation chemistry, announced in 2026, represents a major leap forward in polymer-based energy storage. This new system integrates a high-performance conductive-polymer cathode with a self-extinguishing liquid-salt electrolyte whose vapor pressure is billions of times lower than that of lithium-ion electrolytes. The chemistry has been shown to self-extinguish under direct flame exposure at 3,600°F while delivering more than 10,000 cycles without active thermal management. These advances reflect PolyJoule's ability to design, synthesize, and validate polymer materials that combine safety, durability, and energy density in ways not achievable with conventional battery chemistries.

PolyJoule's R&D capabilities span materials science, electrochemistry, cell engineering, and system-level integration. The company designs and synthesizes its own polymers, engineers large-format cells using industrial manufacturing equipment, and validates performance through rigorous testing and certification, including UL 9540A and UL 810A. Its research teams focus on eliminating failure mechanisms common in metal-based batteries—such as dendrite formation, exothermic reactions, and accelerated degradation—while creating a platform that can be manufactured with domestic supply chains and deployed in applications where safety and reliability are paramount. Through this combination of advanced materials development, scalable manufacturing processes, and system-level engineering, PolyJoule has established one of the most mature and commercially ready conductive-polymer energy storage technologies in the world.

In this context, PolyJoule's technology offers a unique value proposition: a safe, non-flammable, long-life battery platform that strengthens the reliability of mobility infrastructure and complements high-energy-density lithium-ion systems.as

PROPOSED COLLABORATIVE PROJECT IN R & D

(As much detail as possible, both in what it offers and what you want in a potential partner)

PolyJoule, a U.S.-based company, is seeking partners that can collaborate on the development and use of its batteries in mobility applications.

In the automotive sector, adoption is currently limited due to the lower energy density of polymer-based batteries compared to lithium-ion systems. This constraint requires larger and heavier battery packs, reduces driving range and payload efficiency, and conflicts with the strict space and weight limitations of vehicle design. As a result, PolyJoule batteries cannot yet compete with lithium-ion systems for primary propulsion in electric vehicles, although they may become viable as the technology continues to evolve.

Rather than replacing lithium-ion batteries in electric vehicles, PolyJoule's technology is positioned to strengthen the broader electrification ecosystem. It enhances the safety and resilience of charging and grid infrastructure and complements existing battery

technologies in hybrid configurations. Its polymer-based systems offer a unique value proposition for applications where safety, thermal stability, and long cycle life are essential.

PolyJoule is also seeking technological partners specialized in polymer synthesis, specialty chemicals, advanced materials, and manufacturing. Ideal partners are companies with flexible production lines, the ability to adapt processes to emerging chemistries, and experience scaling materials from pilot batches to industrial volumes. Another relevant group includes companies working in advanced materials, composites, and functional additives, which could support the development and production of polymer blends, electrode materials, coatings, or precursor compounds required for battery-grade conductive polymers. In all cases, partners must be able to ensure that materials meet the performance and safety standards required for energy-storage systems.

General comments:

- By sending this information authorizing its dissemination.
- A company profile must be attached or a link to the company's website must be provided: <https://www.polyjoule.com/>