

# TAU Systems demonstrates first electron beam production with its commercial laser-powered particle accelerator

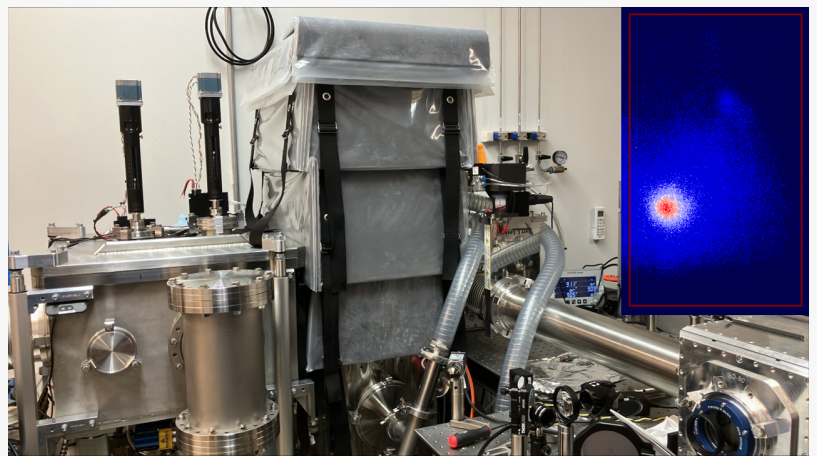
*Revolutionary technology achieves electron beam production, marking major milestone toward compact, cost-effective particle acceleration*

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TAU Systems' laser-powered accelerator is the first commercial system of its kind in the world

TAU Systems today announced it has successfully demonstrated electron beam production from the world's first commercial laser-powered accelerator, a breakthrough that promises to make advanced particle acceleration technology accessible to industries ranging from semiconductors to healthcare.

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This represents a fundamental shift in how we think about particle accelerators. We've taken technology that typically requires massive facilities km long and made it compact and commercially viable.”

*Bjorn Manuel Hegelich,  
founder and CEO at TAU  
Systems*

The achievement follows months of development of TAU's proprietary accelerator design. It leverages the very reliable operation of TAU's state-of-the-art 100-Hz laser system, supplied by Thales, which has demonstrated exceptional stability. The company has now demonstrated that it can use that laser to accelerate electrons in a plasma very close to the speed of light, a first for a commercial system, globally. It achieved this result in a compact set up which will soon be ready for replication in standard industrial settings.

"This represents a fundamental shift in how we think about particle accelerators," said Bjorn Manuel Hegelich, founder and CEO at TAU Systems. "We've taken technology that typically requires massive facilities kilometers long and made it compact and commercially viable, opening new possibilities for industries that need advanced testing and research capabilities."

Conventional particle accelerators have become indispensable tools for 21st century research and development, powering everything from materials science breakthroughs to medical treatments. However, their substantial size and billion-dollar price tags have kept them largely confined to government laboratories and major research institutions, placing them beyond reach for most private sector applications.

TAU's laser-powered approach delivers comparable performance to traditional large-scale accelerators while dramatically reducing both footprint and cost. This technological leap is particularly timely for industries facing growing demands for advanced testing capabilities:

- Semiconductors: As chips become more complex and mission-critical, 3D imaging and radiation hardness testing, both applications of TAU's technology, become essential
- Space: Satellite and spacecraft components require rigorous radiation effects testing
- Defense: Military electronics must be proven to withstand extreme operational environments
- Healthcare: Compact accelerators enable simultaneously new medical imaging and treatment modalities

TAU Systems is now focused on two parallel development tracks. The newly commissioned accelerator will undergo systematic ramp-up to full operating capabilities over the next few months, while the company continues to develop novel techniques for semiconductor metrology



TAU Labs Application Centre, Carlsbad, California



TAU Systems' particle accelerator, driven by Thales' laser

and radiation testing for space-bound electronics at the company's laboratory at the University of Texas at Austin.

The company expects to integrate these technologies in 2026, enabling delivery of comprehensive radiation effects testing services to commercial and government customers. This capability addresses a significant bottleneck in electronics development, particularly as industries push into extremely demanding environments like space and advanced computing applications.

#### About TAU Systems

TAU Systems is an Austin, Texas-based deep-tech company commercializing the first compact particle accelerators and specialized X-ray free-electron lasers that combine the capabilities of large accelerators with a small footprint to provide easy and affordable beam-time access for any company. Led by premier experts in laser-driven particle accelerators, TAU is democratizing access for the progress of semiconductors, batteries, medical imaging, nuclear energy, and more. Learn more at [www.tausystems.com](http://www.tausystems.com).

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