

How does mesodyne's lightcell convert fuel into electricity?

Mesodyne's LightCell converts fuel into electricity via light. Unable to load video. Try again later. Mesodyne's patented LightCell(TM) power generator converts any fuel into electricity via light. The core of the LightCell is a nanophotonic material that is engineered to only emit certain wavelengths of light when heated.

What is a lightcell & how does it work?

With more than 10x the energy density of Li-Ion batteries, the LightCell enables people, sensors, autonomous vehicles - virtually any system that requires portable power - to perform their mission beyond what is possible today and extend range, endurance, and lethality across a multitude of platforms.

Why is mesodyne more efficient than traditional thermophotovoltaics?

Mesodyne's generator is significantly more efficient than traditional thermophotovoltaics because the light emitted by the nanophotonic material nearly perfectly matches what the PV cell can convert into electricity. Mesodyne's founders demonstrated the world record efficiency for this type of energy conversion in 2017 during their PhDs at MIT.

Who is mesodyne?

We founded Mesodyne shortly after we demonstrated the world record efficiency for thermophotovoltaic energy conversion at MIT in 2017. At our advisors' recommendation, we took entrepreneurship classes, started to conduct customer interviews, and saw real interest in the technology.

Why should you use mesodyne power generators?

Low temperature exhaust for covert operation. Mesodyne's power generator reduces the battery load of researchers and infrastructure operators relying on remote unmanned instrumentation, dismantled warfighters, and operators using unmanned aerial vehicles by 75% resulting in increased capability and cost savings.

Why did mesodyne join Luminate?

From there Mesodyne participated in Chain Reaction Innovations, the WERC Bench Labs Accelerator, the Air Force Techstars, the Air Force Mass Challenge, and now Luminate. When we joined Luminate, the goal was to expand our network, specifically in optics and photonics.

As demand for electricity to power unmanned vehicles, dismantled war fighters and critical infrastructure increases, existing solutions such as batteries and generators cannot keep. Mesodyne is ...

The Mesodyne LightCell(TM) converts fuel to electricity via light. LightCells(TM) are silent, have no moving parts, operate on any hydrocarbon fuel, and store 10x the energy of lithium ion batteries of equal weight. Mesodyne is building a set of portable power products that generate long endurance power for remote unmanned systems, drones and ...

Mesodyne's LightCell generator -- about the size of a loaf of bread and roughly eight pounds -- puts out five-to-10 times the wattage per pound of current tactical batteries, Veronika Stelmakh, CEO and co-founder of ...

The demand for portable power is constantly growing, and there's currently no solution for lightweight, portable power generation. Mesodyne, a startup in the Luminate accelerator's fourth cohort, is developing a [...]

Mesodyne's patented LightCell is a new class of power generator that converts fuel into electricity via light. Simply put, the LightCell enables portable, efficient, quiet, reliable, long ...

In Mesodyne's LightCell(TM), a microcombustor heats a nanoengineered photonic crystal material to incandescence, which shines light on the photovoltaic (PV) cell, generating electricity. My co-founder, Dr. Walker Chan, and I developed the technology at MIT's Institute for Soldier Nanotechnologies with the soldier in mind.

Luminate. "Mesodyne is an impressive contender. The company's LightCell(TM) power generator offers a compact, long-lasting, quiet and reliable power alternative." The Rochester Business Journal is featuring profiles of the companies that are helping to write the next chapter in Rochester's history as the world's center for optics,

Mesodyne's solution is a novel ultra-high energy density, multi-fuel, silent, compact power generator. Our generators convert fuel to electricity with heat and light as intermediaries: a small micro combustor heats a photonic crystal to incandescence and the resulting light is tailored to the bandgap of an infrared cell resulting in

Mesodyne's LightCell is completely silent, has no moving parts, operates on any fuel, and has up to 10X the energy density of lithium ion batteries. LightCell technology enables new capabilities for unmanned small systems: increased endurance over batteries, improved reliability over internal combustion, fuel flexibility over fuel cells, and more.

The LightCell increases the endurance of fixed wing UAVs by 10X compared to batteries alone. Increased endurance is particularly useful when the UAV needs fly to a remote inaccessible site, perform its mission, and return. Low vibration ...

Dr. Walker Chan is the cofounder and CTO of Mesodyne, where he leads the team of engineers designing the LightCell's integration into products for use across military and commercial applications. He serves on the company's Board of Directors and is an expert in thermophotovoltaics, thermofluids, combustion systems, and high temperature ...

Another company called Mesodyne is also working on the problem. Mesodyne's LightCell. Mesodyne, another company in the solid-state engine space, has developed a similar thermophotovoltaic system [8] but with some key differences. Mesodyne's system integrates the combustion chamber, nanophotonic emitter, and PV cell into a small chip, making ...

Mesodyne specializes in the development of compact power generators with a focus on energy solutions for portable applications. Their main product, the LightCell, is a power generator that significantly extends the operational time of systems requiring portable power by utilizing various types of fuel. ... It was founded in 2020 and is based in ...

Mesodyne's LightCell(TM) generator is silent, has no moving parts, operates on any hydrocarbon fuel, and offers up to 10x the energy density of lithium ion batteries. Stelmakh holds a BS in electrical engineering from the University of Texas at Arlington, and a MS and a PhD in electrical engineering from MIT. The focus of her PhD work and post ...

Wow! Mesodyne has been awarded an AFWERX Agility Prime USAF SBIR/STTR Phase II contract to further develop and field the LightCell(TM) power generator for #sUAS... | 14 comments on LinkedIn

Mesodyne is developing a new kind of power generator that converts fuel to electricity via light. The company is one of 10 finalist companies with optics, imaging and photonics-enabled technologies that's working with ...

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