



# Nepal mesodyne lightcell

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.

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.

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.

Is lightcell safe?

Is it safe? The exterior of the LightCell is touch safe. The combustion process is contained inside the microcombustor and most of the heat is recovered out of the exhaust stream, reducing the exhaust temperature to a safe level. How is this different from conventional thermophotovoltaics?

Mesodyne is developing a new kind of power generator that converts fuel to electricity via light. The generator is silent with no moving parts, operates on any fuel, and has 10 times the energy density of lithium ion batteries. ... and accelerated by Techstars, Mesodyne's patented LightCell technology enables long endurance, reliable ...

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



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systems: increased endurance over batteries, improved reliability over internal combustion, fuel flexibility over fuel cells, and more.

Developed at MIT's Institute for Soldier Nanotechnologies, incubated at Chain Reaction Innovations at Argonne National Lab, and accelerated by Techstars, Mesodyne's patented LightCell technology enables long endurance, reliable, efficient, silent power for remote unmanned sites and systems, drones and robots, warfighters and emergency ...

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 ...

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National Defense Magazine reporter Sean Carberry spotlights Mesodyne, an MIT startup that is developing a thermal photovoltaic power generator that could be used to help extend battery power during military missions. Mesodyne's LightCell generator can deliver "high-efficiency direct current power from a quiet device with no moving parts that could change the ...

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 ...

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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 from Mesodyne's static conversion process is needed for accurate imaging.

Mesodyne's LightCell is a portable solution designed for defense use cases, where it can be carried by soldiers as a drone charging system that extends flight time by over 10x. Mesodyne's innovative product is also 75% lighter than existing battery solutions, making it a viable option for consumer applications, as well.

The Mesodyne LightCell(TM) converts fuel to electricity via light. LightCells(TM) are silent, have no moving



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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 ...

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