
Business Presentation June 15, 2020

www.brilliantlightpower.com

# Safe Harbor Statement

This presentation contains forward-looking statements, including statements regarding the company's plans and expectations regarding the development and commercialization of our technology. All forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those projected. The forward-looking statements speak only as of the date of this presentation. The company expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any such statements to reflect any change in the company's expectations or any change in events, conditions or circumstances on which any such statements are based.

# About Brilliant Light Power

Developing a new zero-pollution, primary energy source applicable to essentially all power applications.

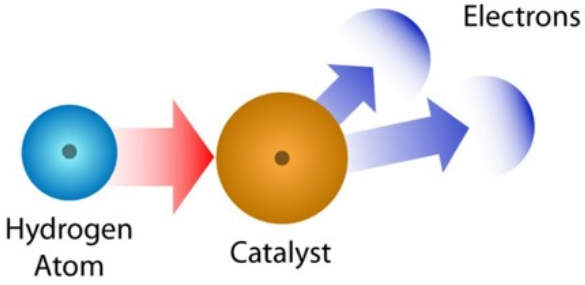
The energy breakthrough uses the latent energy of the hydrogen atom that is released by forming Hydrino®, a more stable chemical form of hydrogen.

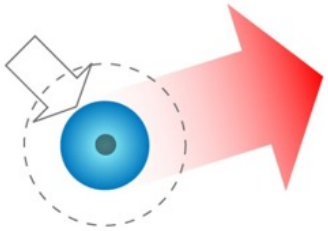
The SunCell® cell, invented by Dr. Mills, releases this energy as brilliant light converted to electricity or heat at a fraction of the cost of any competing energy source.

- Power demonstrated with a higher power density than any other power source known to man.
- Energy source validated by 10+ methods
- Hydrino® "In a bottle" products identified, validated, and samples available
- SunCells® operating for thermal energy validation, on demand


Reinventing electric power:
*safe, accessible, affordable, clean*

# Hydrino®, a Convention Defying Discovery




$100M+ invested, years of research, invention and success

## Theory

- Hydrino® predicted from physical laws. Its existence as a more stable chemical form of hydrogen.
- 100+ peer reviewed publications
- Formal validation by two physicists.

## Hydrino® Identification

- Validated by 10+ methods
- Hydrino® in-a-bottle samples
- Ubiquitous in nature and matches astrophysicists conclusions that "dark matter" is a different form of hydrogen.

## Power Releasing Reactions

- Hydrino® power density higher than any other power source known to man.
- Recent NIST calibrated results show 20 MW peak optical power
- Energetic reactions 10X TNT

## Power Engineering

- 300 kW Thermal Power Validated
- SunCell® Research Units Operating Continuously!

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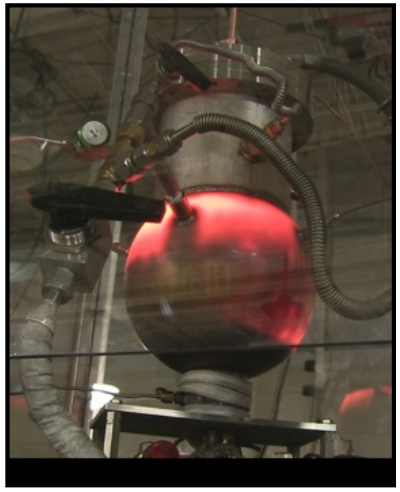
# Brilliant Light Power's Path Forward

- Prove our power source to the world in the near term through power measurements, identification of the Hydrino® products of the reaction, and engineered power systems.
- Independent SunCell® and Hydrino Validations
- Advance the technology
- Engineer continuous power systems
- Commercialize solutions

World's First Closed SunCell 8/2018



Test SunCell 03/2019

Brilliant's SunCell® could be the most important energy technology of our generation

Theory

# Over 100 Peer Reviewed Publications


Latest paper confirms the fundamental Hydrino reaction, the SunCell's power source

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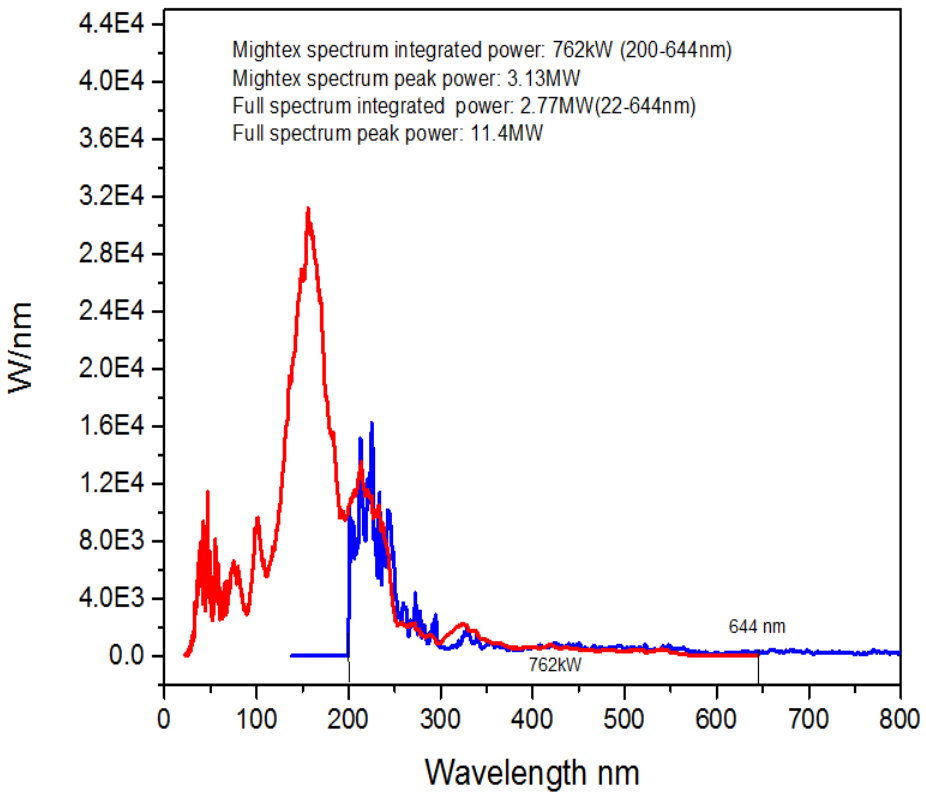
Validation

# Hydrino® Extraordinary Optical Power



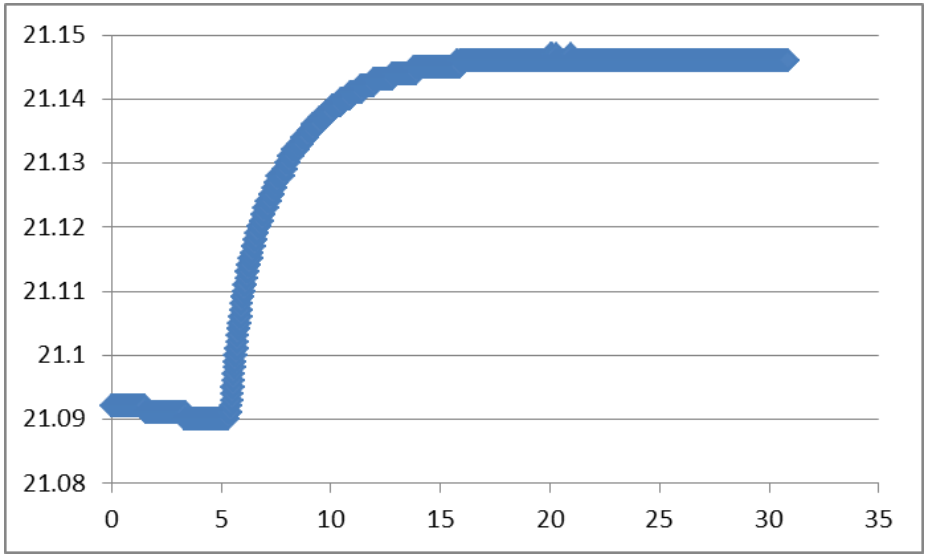

- Using three spectrometers power calibrated by NIST calibration light sources, the optical powers and spectra over the 20 nm to 800 nm region were absolutely determined on hydrated silver shots caused to detonate with a low-voltage, high current pulses.
- Continuum high-energy, extreme ultraviolet (EUV), radiation at megawatt average and 10-megawatt peak power levels were observed.
- The EUV spectrum matched theoretical predictions for the electronic transition of a hydrogen atom to the hydrino atomic state
- There is no other explanation for the observed optical energy output of about 30 times the input

Validation of High-Energy Continuum Light and Optical Power

Validation

# Thermal Calorimetry Validation

- Using a commercial Parr water bath calorimetry on silver shot detonations, the detonation-produced electromagnetic pulse that interfered with ignition input power determination was eliminated to give results that are substantially unchallengeable.

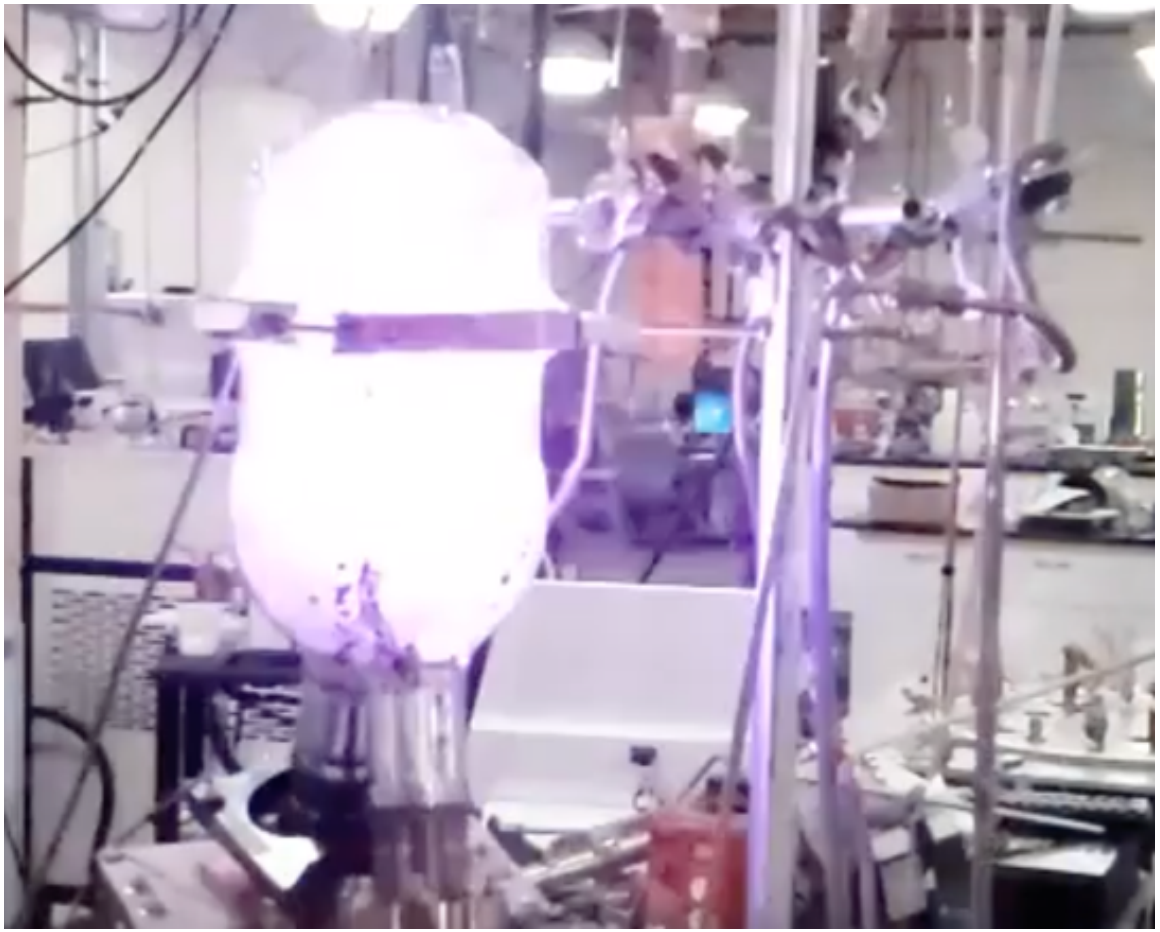



| Test | $t_f - t_{det}$ [ms] | $E_{out} - E_{Weld,Total}$ [J] | $(E_{out} - E_{Weld,Total})/(t_f - t_{det})$ [kW] |
|---|---|---|---|
| 022719(1) | 1.19 | 474.9 | 399 |
| 022719(2) | 0.92 | 256.8 | 279 |
| 022819(1) | 1.75 | 372.8 | 213 |

Hydrino Reaction Power at over 100,000W Levels

Validation

# World's First Closed SunCell® … Aug 2018



- Batch, hydrogen-inventory-limited testing with predominantly noble gas (argon) with some hydrogen having a total pressure slightly over atmospheric.
- The hydrogen-argon gas is not a combustible mixture.
- Engineering and low-power testing successful.
- No prior known energy-releasing chemical reaction is possible.
- This plasma as formed and observed cannot be created with prior known technology.

Video: Thermal SunCell® closed system 8/31/2018

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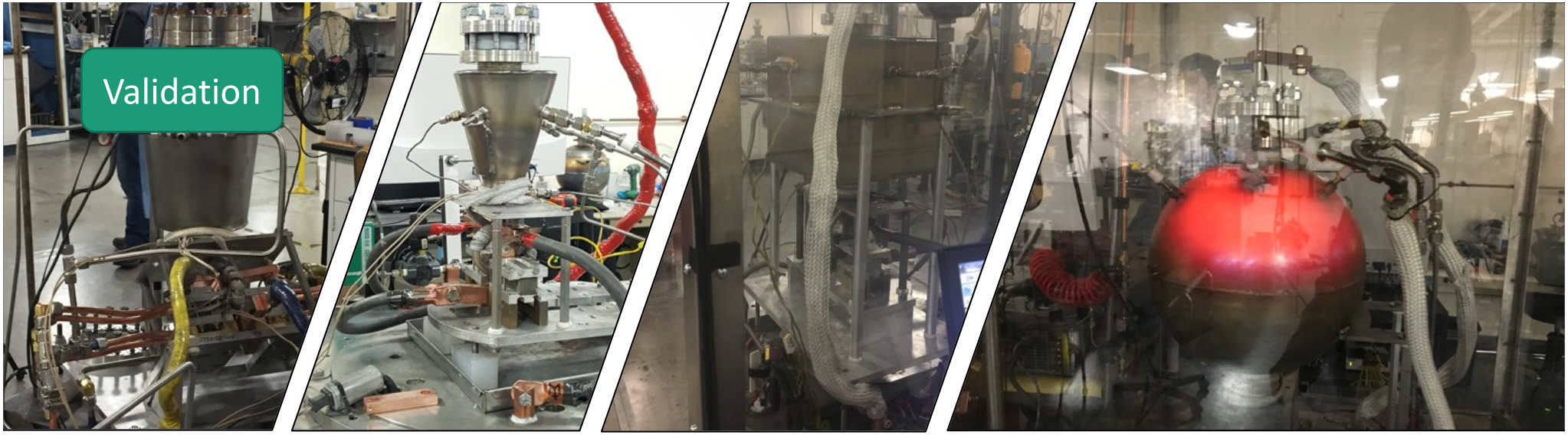
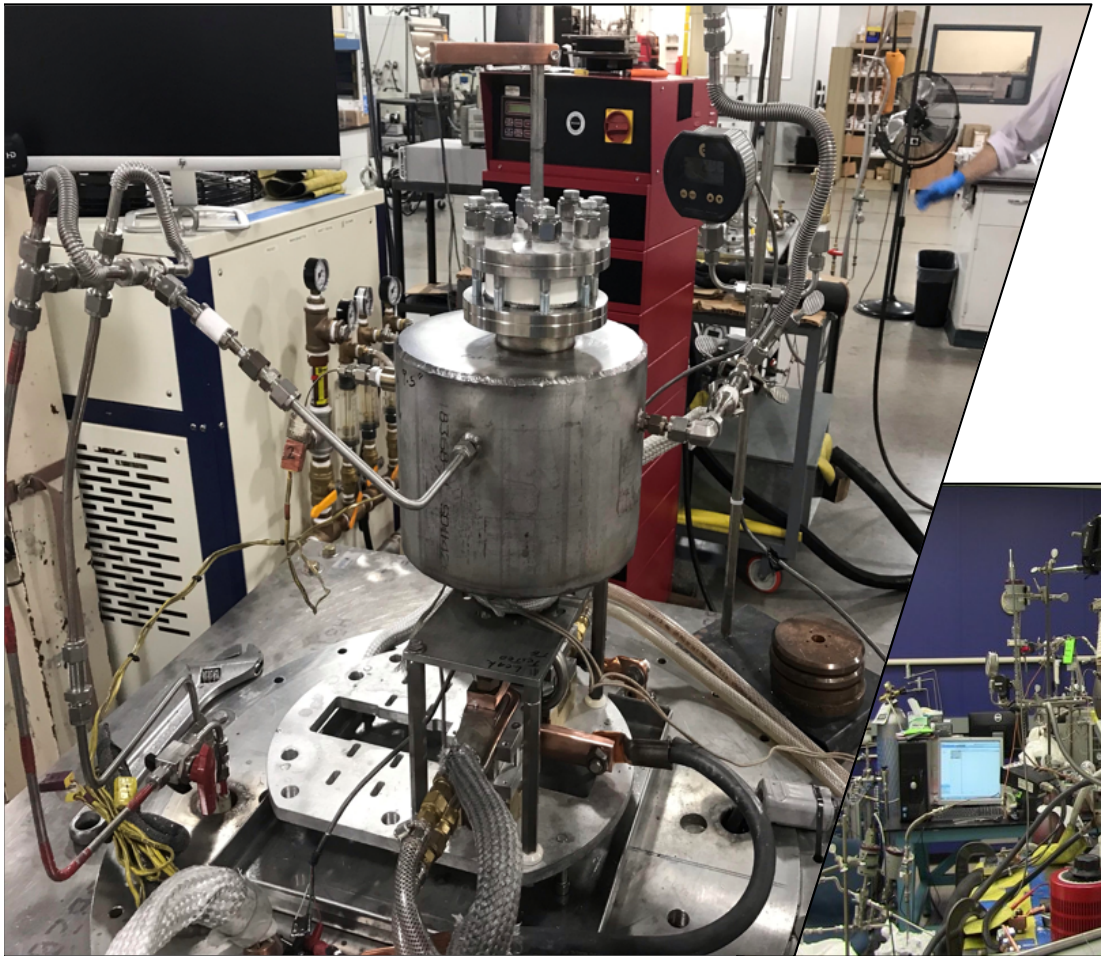
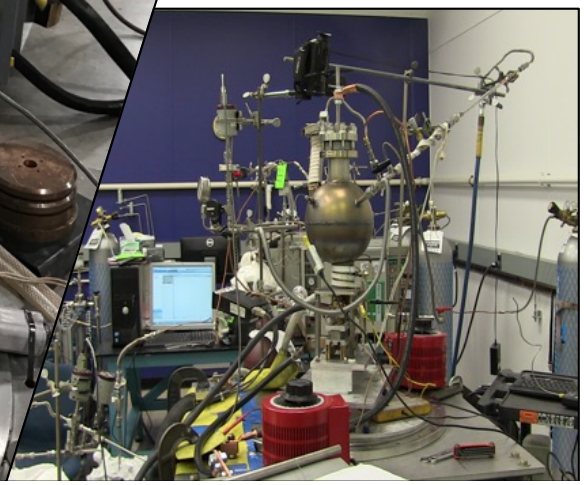
# Validation

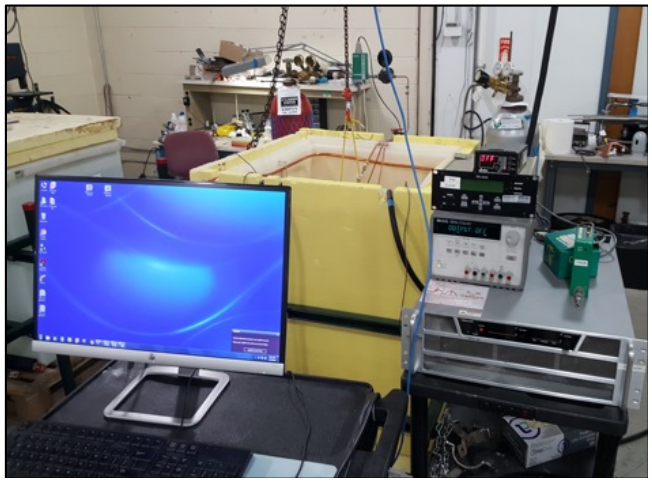




Multiple stations available for testing:

- Geometry,
- Scale,
- Gas Composition and Flow Rate,
- Ignition Systems and Parameters,
- Power Measurement,
- Hyrdino® production





# Initial Hydrino® Markets are Staggering

## Thermal

- **$8 T market, BrLP focused on $225B Industrial Heat**
- Leverages years of plasma development
- Platform for earlier revenue and testing
- *Research SunCells® operational on demand*

## Power Generation

- **$3.5 T electricity market**
- Leverages thermal SunCell® experience
- Photovoltaic design solutions
- Innovative MHD SunCell design
- *Lease power versus capital purchase*

## Novel Compounds

- **Market: $TBD**
- Analytical identification completed for several Hydrino® compounds
- Exhibit unknown magnetic properties
- Samples available today
- *Exploring applications with specialty firms*

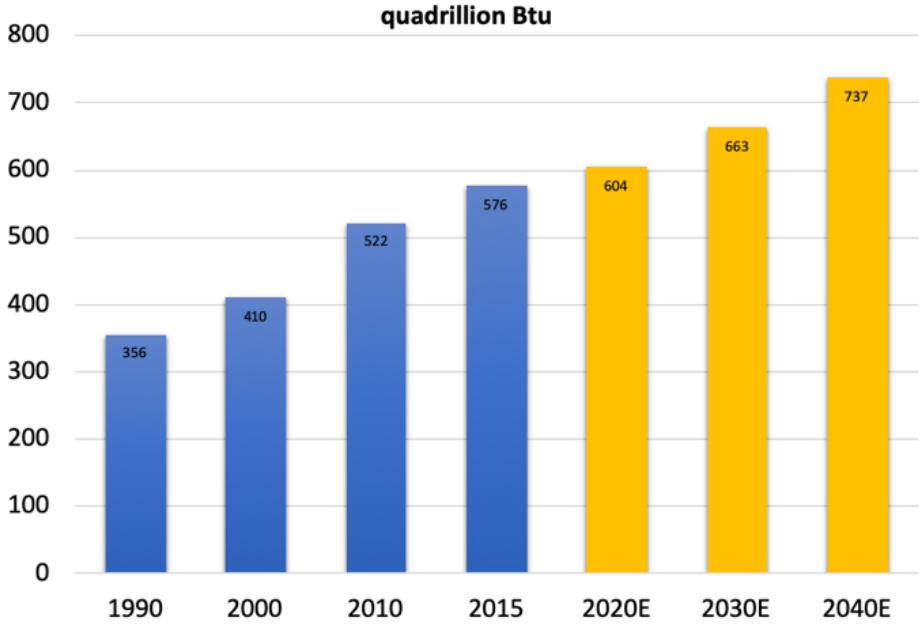
## Energetic Materials

- **Market $ 4.6B**
- Initial data shows superiority to TNT: 10X blast, safer
- Test and validation reports available
- Partnership model for material
- *Early stage market opportunity*

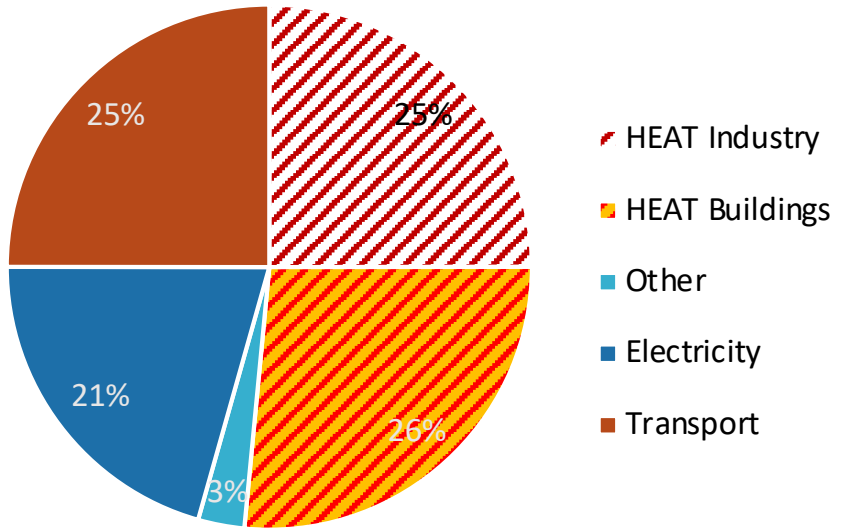
# Global "Heat" Market

- World energy consumption rises 28% between 2015 and 2040
- $9 trillion~ expended on total fossil fuels globally in 2015
- Heat is the largest energy end-use, accounts for around 50% of total energy consumption
- 3/4 Heat from fossil fuels, with coal and NG over 50%
- 1/3 of worldwide CO2 emissions from Heat sources

## Global Energy Consumption




## Final Energy Use




Sources: EIA IEO 2013, Heating Without Global Warming – International Energy Agency 2014., Carbon emissions from burning biomass for energy, Partnership for Policy Integrity, IEA Renewables https://www.iea.org/renewables2018/heat/

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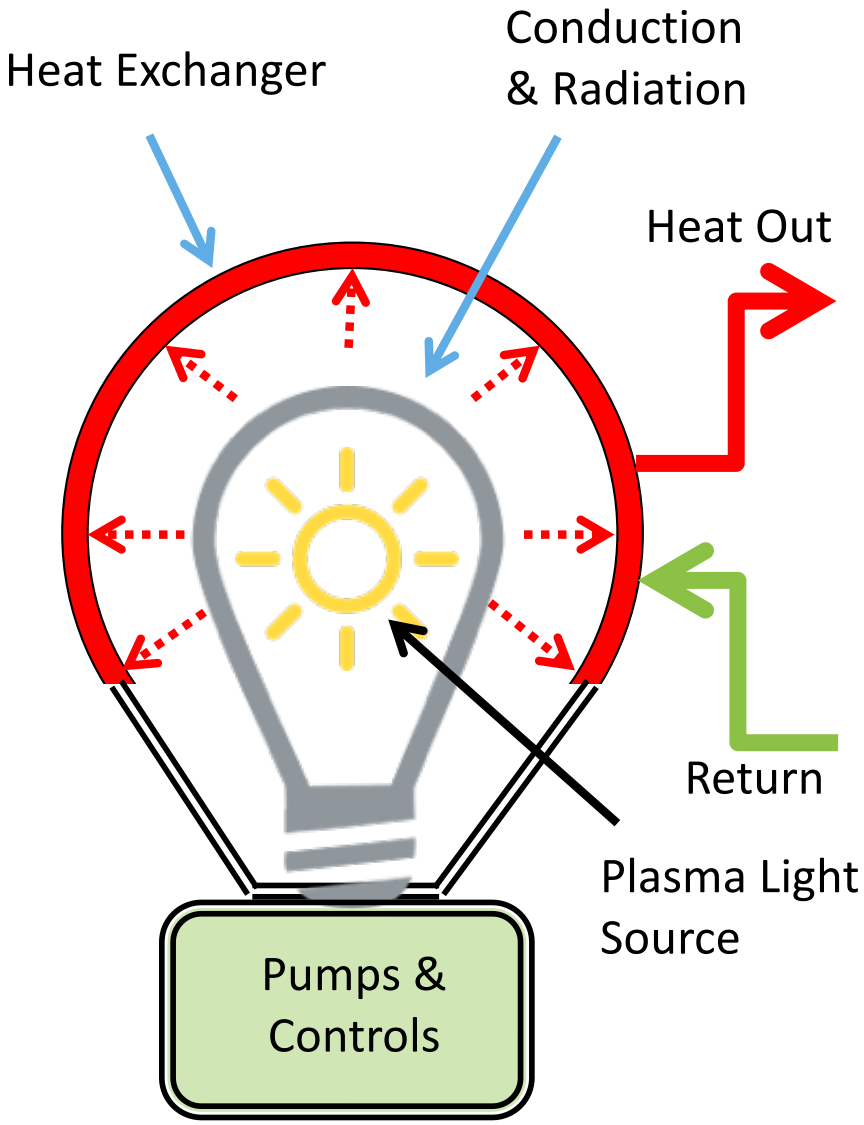
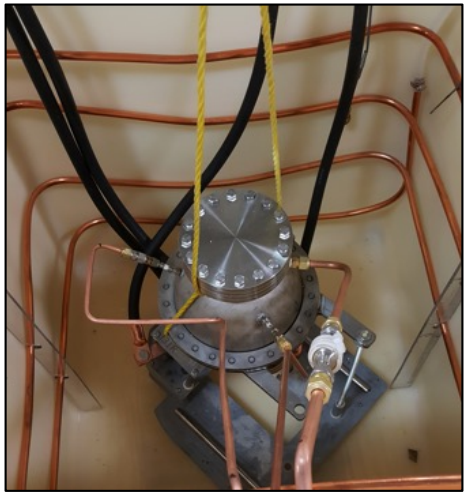
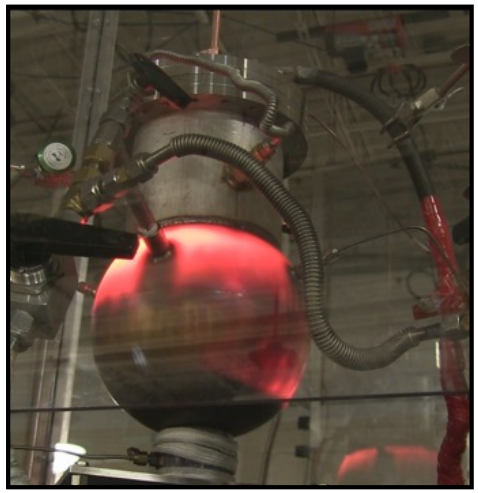
# How the Thermal SunCell® Works




- Theory solved
- IP filings submitted, US and Worldwide Patents Issued
- Light source demonstrated
- 300,000W water bath-tested prototype validated





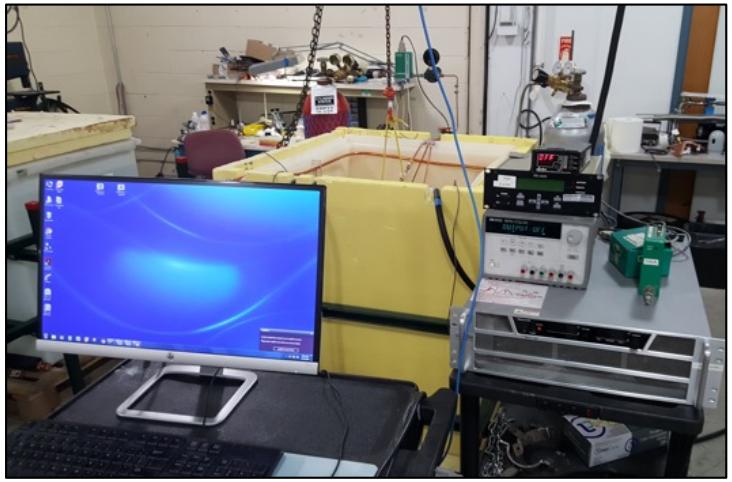
Research Thermal SunCell® Test Units

Validation

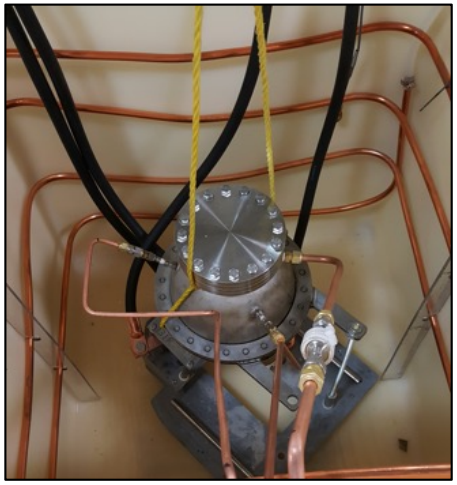
# SunCell® Calorimetry Testing … February 2020

- Water bath test of the SunCell® hydrino reactant gas mixture comprising hydrogen fuel and trace oxygen served as a source of O for HOH catalyst.
- The molten gallium was injected from the reservoir to a counter electrode and recycled to maintain very low voltage atmospheric pressure plasma.
- Heat exchange to a coolant facilitates power balance measurements and is a step towards power utilization in commercial designs.
- The engineering has advanced to a stage to permit very long duration continuous operation.

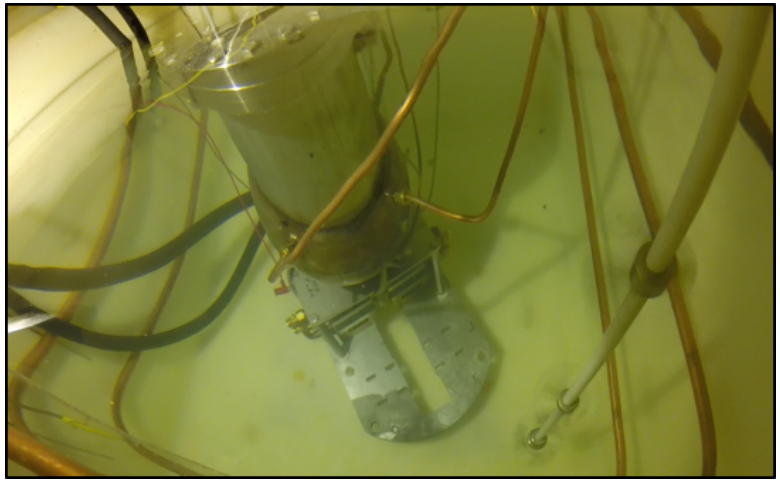
Test Station



SunCell® Installed



SunCell® Operational Video



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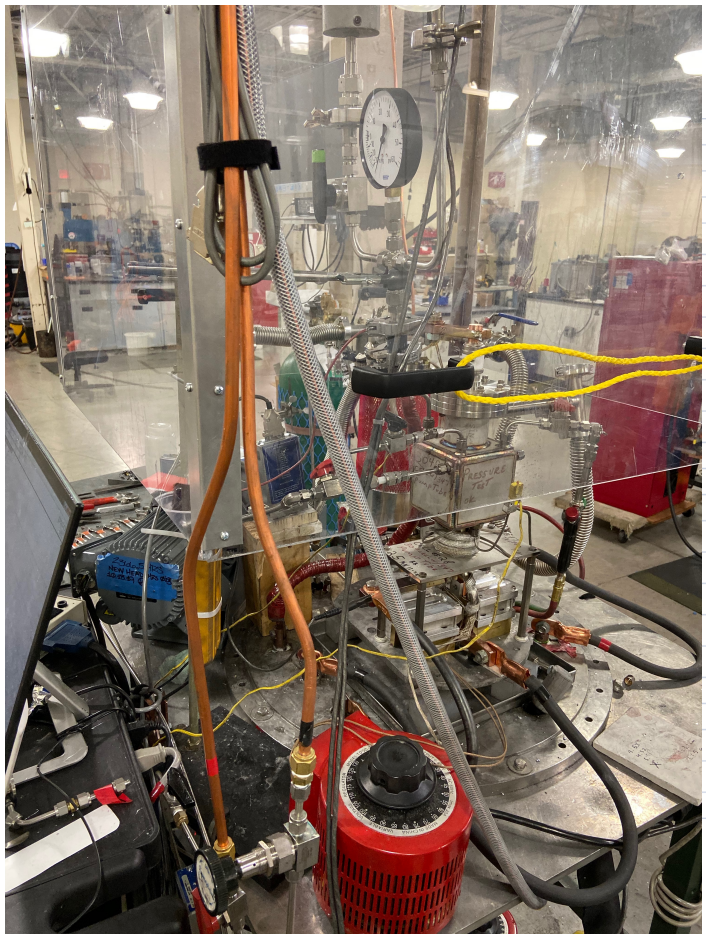
# Second Validation: Molten Metal Bath Calorimetry Measured 200 kW of Hydrino Power Production



Heat transfer expert Dr. Mark Nansteel validated 200 kW of power produced by BrLP's proprietary hydrino plasma reaction maintained in its SunCell® using molten metal bath calorimetry.

**Test MM2**

| Times | |
|---|---|
| $t_1$ [s] | 24 |
| t' [s] | 25.27 |
| $t_2$ [s] | 50 |
| (t' - $t_1$) [s] | 1.27 |
| ($t_2$ - $t_1$) [s] | 26 |

| Cell temperatures | |
|---|---|
| $T_{init1}$ [°C] | 56.41 |
| $T_{init2}$ [°C] | 56.21 |
| $T_{final1}$ [°C] | 137.10 |
| $T_{final2}$ [°C] | 139.16 |
| $T_1$ [°C] | 56.31 |
| $T_2$ [°C] | 138.13 |
| ($T_2$ - $T_1$) [°C] | 81.82 |

| Energy and power | Energy [kJ] | Power [kW] |
|---|---|---|
| Cell enthalpy rise, $(\Sigma m_i C_{pi})(T_2 - T_1)$ | 455.85 | |
| Electrode input, $E_{Elect}$ | 212.9 | 167.64 |
| Energy loss ($\int Q_{Loss}(T)$), $Q_{Loss}$ | 29.9 | 1.15 |
| Plasma energy generation ($Q_{Loss} = 0$), $E_{Plasma}$ | 242.95 | 191.30 |
| Plasma energy generation ($\int Q_{Loss}(T)$), $E_{plasma}$ | 272.85 | 214.84 |

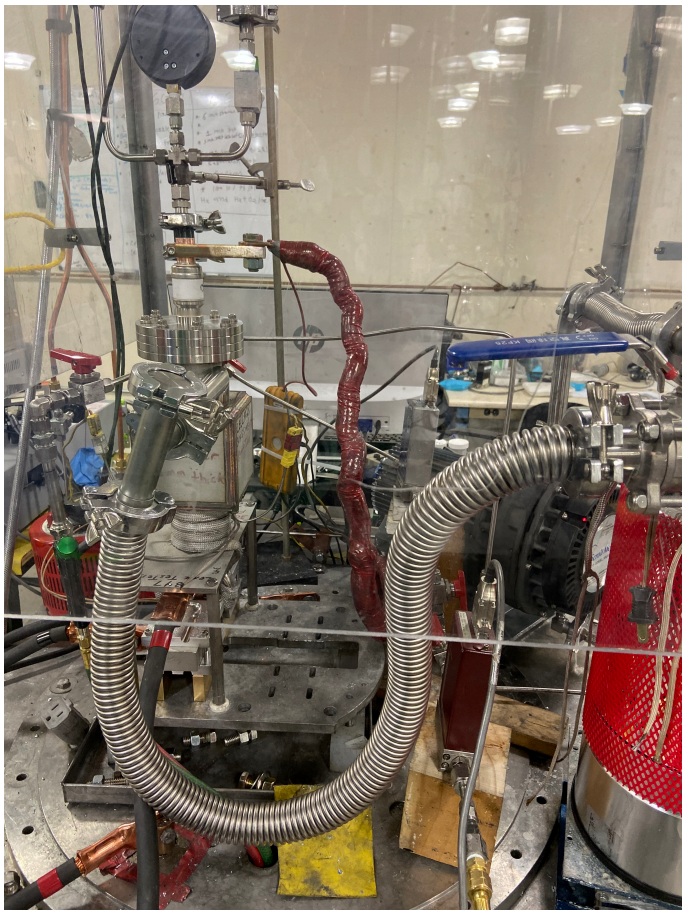
| Gain | |
|---|---|
| Gain ($Q_{Loss} = 0$), $(E_{Plasma} + E_{Elect})/E_{Elect}$ | 2.14 |
| Gain ($\int Q_{Loss}(T)$), $(E_{Plasma} + E_{Elect})/E_{Elect}$ | 2.28 |

**Cell component thermal capacities**

| | $m_i$ [kg] | $C_{pi}$ [kJ/kg-K] | $m_i C_{pi}$ [kJ/K] |
|---|---|---|---|
| Gallium | 2.5 | 0.383 | 0.9575 |
| Galinstan | 0 | 0.3 | 0 |
| Stainless cell | 6.4 | 0.502 | 3.2128 |
| Stainless electrode | 1.26 | 0.502 | 0.63252 |
| Tungsten electrode | 1.52 | 0.1339 | 0.203528 |
| Copper electrode | 0.369 | 0.39 | 0.14391 |
| BN electrode | 0.166 | 0.85 | 0.1411 |
| Tungsten liner | 0 | 0.1339 | 0 |
| Tantalum liner | 2 | 0.14 | 0.28 |
| Reservoir | 0 | 0.794 | 0 |
| Totals | 14.215 | | 5.571358 |

(brilliantlightpower.com/pdf/Mark_Nansteel_Report.pdf)

# Validation: Molten Metal Bath Calorimetry Measured 200 kW of Hydrino Power Production



Dr. Randy Booker, Physics Chairman, University of North Carolina-Ashville validated 200 kW of power produced by BrLP's proprietary hydrino plasma reaction maintained in its SunCell® using molten metal bath calorimetry.

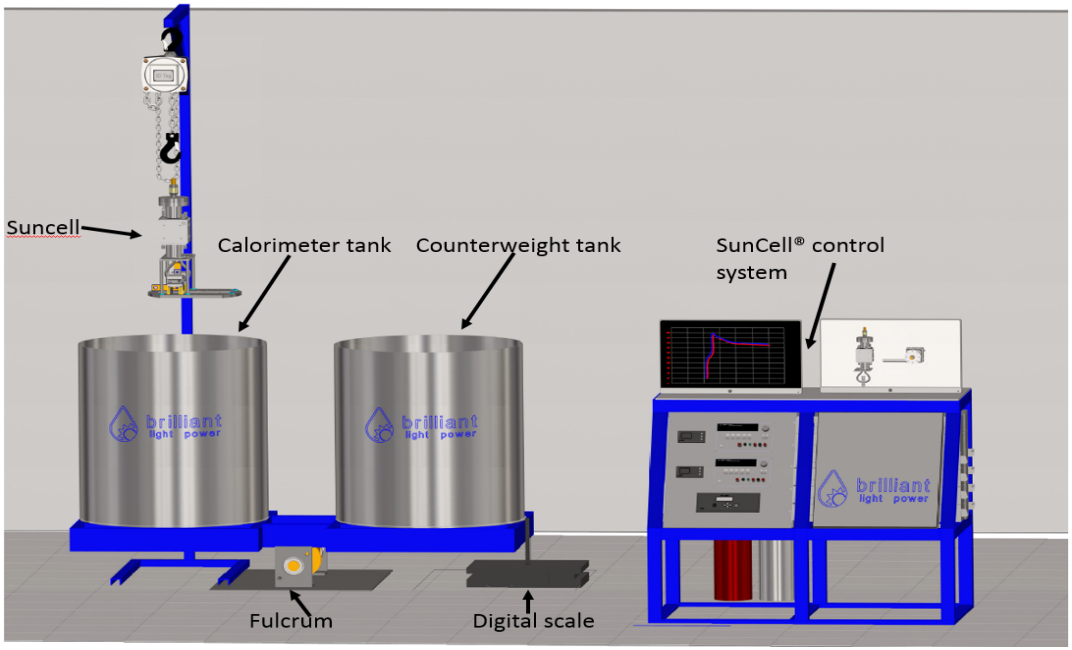
| Duration (s) | Input energy (kJ) | Output energy (kJ) | Input power (kW) | Output power (kW) | Gain | Excess power (kW) |
|---|---|---|---|---|---|---|
| **5.055** | 554.7 | 1535.3 | 109.7 | 303.7 | 2.77 | 194.0 |

| Duration (s) | Input energy (kJ) | Output energy (kJ) | Input power (kW) | Output power (kW) | Gain | Excess power (kW) |
|---|---|---|---|---|---|---|
| **2.917** | 422.1 | 1058.1 | 144.7 | 362.8 | 2.50 | 218.1 |

(brilliantlightpower.com/pdf/Randy_Booker_Report.pdf)

# Validation: Water Bath Calorimetry Measured 300 kW of Hydrino Power Production

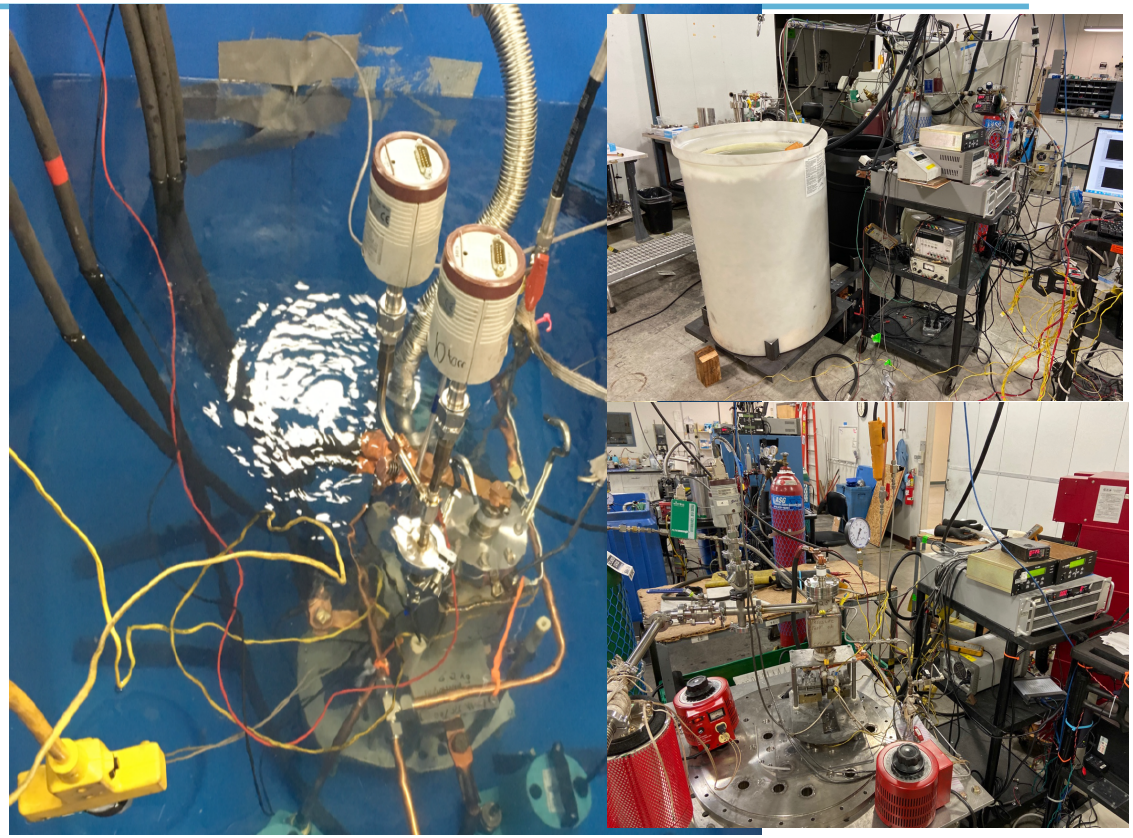
Dr. Randy Booker, Physics Chairman, University of North Carolina-Ashville 300 kW of power produced by BrLP's proprietary hydrino plasma reaction maintained in its SunCell® using water bath calorimetry. (brilliantlightpower.com/pdf/Randy_Booker_Report.pdf)




| Duration (s) | Input energy (kJ) | Output energy (kJ) | Input power (kW) | Output power (kW) | Power Gain | Net Excess Power (kW) |
|---|---|---|---|---|---|---|
| 2.115 | 192.95 | 818.38 | 91.23 | 386.94 | 4.24 | 295.71 |

# Validation: Water Bath Calorimetry Measured 340 kW of Hydrino Power Production and Molten Metal Calorimeter Measured 220 kW

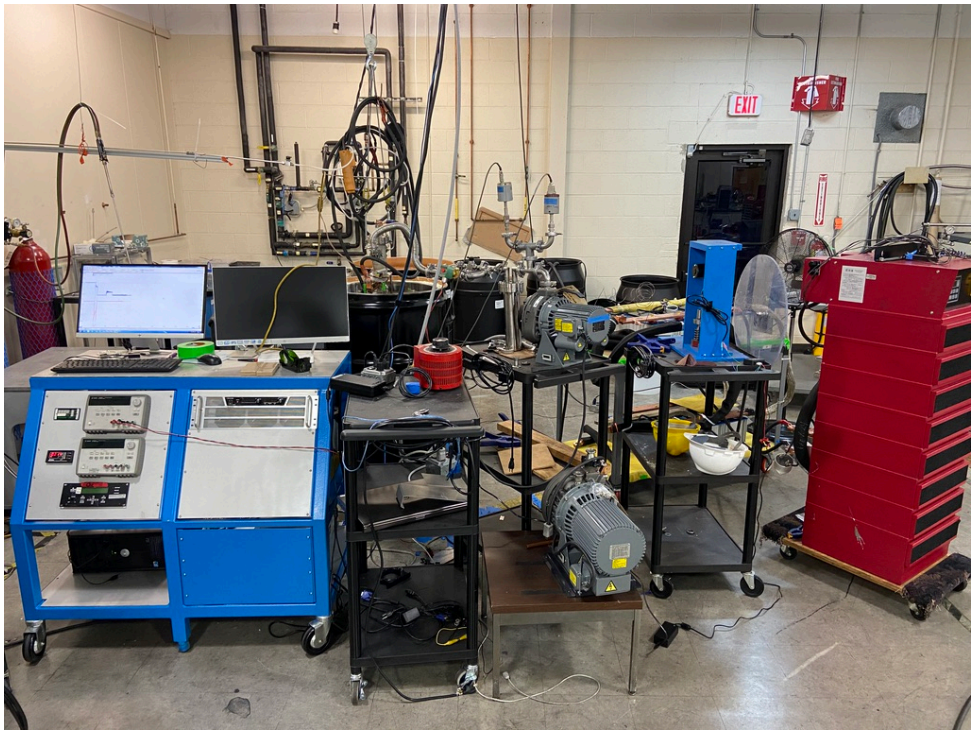
Stephen Tse, Ph.D. Department of Mechanical and Aerospace Engineering, Rutgers University validated up to 340 kW of power produced by BrLP's proprietary hydrino plasma reaction maintained in its SunCell® using molten metal bath and water bath calorimetry. (https://brilliantlightpower.com/pdf/Tse-Validation-Report-Brilliant-Light-Power.pdf)



| Calorimeter | Duration (s) | Input energy (kJ) | Output energy (kJ) | Input power (kW) | Output power (kW) | Power Gain | Net Excess Power (kW) |
|---|---|---|---|---|---|---|---|
| Molten Metal Bath | 2.917 | 422.1 | 1058.1 | 144.7 | 362.7 | 2.51 | 218 |
| Molten Metal Bath | 5.055 | 554.7 | 1548.1 | 109.7 | 306.25 | 2.79 | 196.5 |
| Water Bath | 2.115 | 192.95 | 915.35 | 91.2 | 432.8 | 4.74 | 341.6 |

# Validation: Water Bath Calorimetry Measured 273 kW of Hydrino Power Production in 50 $cm^3$ Corresponding to 5 MW/liter Power Density

Dr. Mark Nansteel, Ph.D. University of California, Berkeley and heat transfer expert validated up to 273 kW of power produced by BrLP's proprietary hydrino plasma reaction maintained in its advanced tube-type SunCell® using water bath calorimetry. The power density was a remarkable 5 MW/liter. (https://brilliantlightpower.com/pdf/Waterbath_Calorimetry_Data_and_Analysis_031120.pdf)




| Duration (s) | Input energy (kJ) | Output energy (kJ) | Input power (kW) | Output power (kW) | Power Gain | Net Excess Power (kW) |
|---|---|---|---|---|---|---|
| **2.95** | 274.9 | 1080.2 | 93.2 | 366.2 | 3.93 | 273.0 |

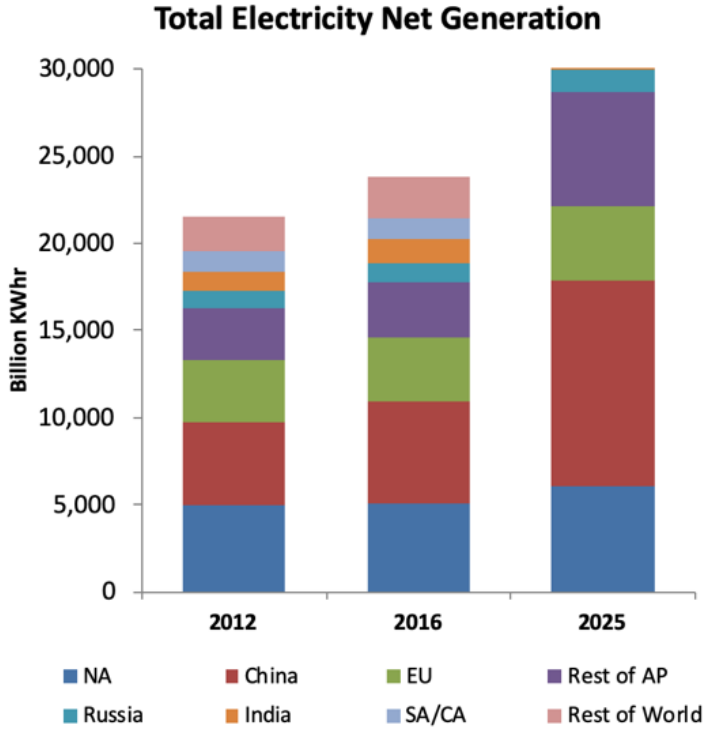
# SunCell® Continuous Operation:

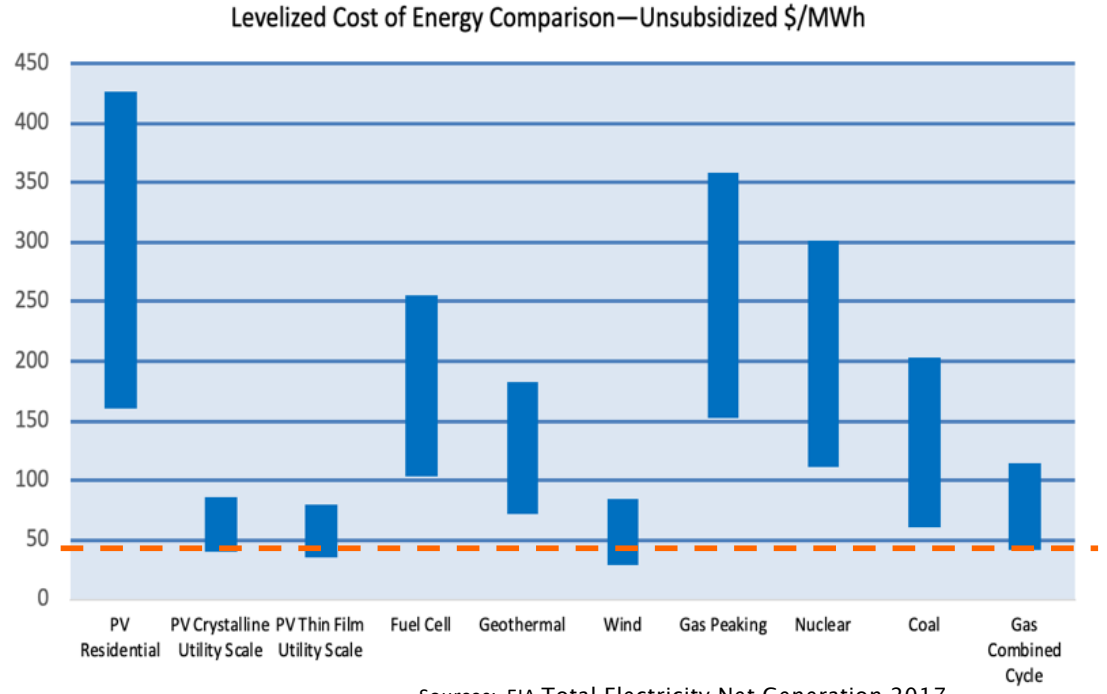
## OVER 100 HOUR DURATION STEAM PRODUCTION TRIALS POWERED BY THE SUNCELL®

The SunCell® was submersed in an 850-liter tap water tank that was initially at room temperature. The SunCell® molten gallium internal temperature remained steady at about 500°C which is a typical operating temperature of a steam turbine power plant. A manifold of water jets maintained a stable external cell temperature while avoidance of localized hot spot formation on the walls was solved using a ceramic liner. The run duration was extended to 104 hours to compete the continuous operation duration trial. The limiting thermal tolerance of the water tank was avoided by using an external chiller and by exchanging hot water with cold water from another tank. The results of these trials demonstrate the utility of SunCell® towards the goal of a commercial heater of several hundred kilowatts to service the greater than $8T/y thermal market.

# Global Electricity

- $4.7 trillion~ global market at $0.12 per kWh at site
- $2 trillion addressable market for SunCell at breakthrough rate of about $0.05 per kWh
- 65% demand increase by from 2016 to 2040 based on IEA Outlook
- SunCell® expected to expand electrical use, fueling new growth
- SunCell® lease rate expected to be attractive versus market to drive adoption




--- SunCell

Sources: EIA Total Electricity Net Generation 2017
IEA World Energy Outlook analysis 2018
IEA Projected Cost of Generating Electricity, 2015 Edition.
Lazard's LCOe Analysis Nov 2018

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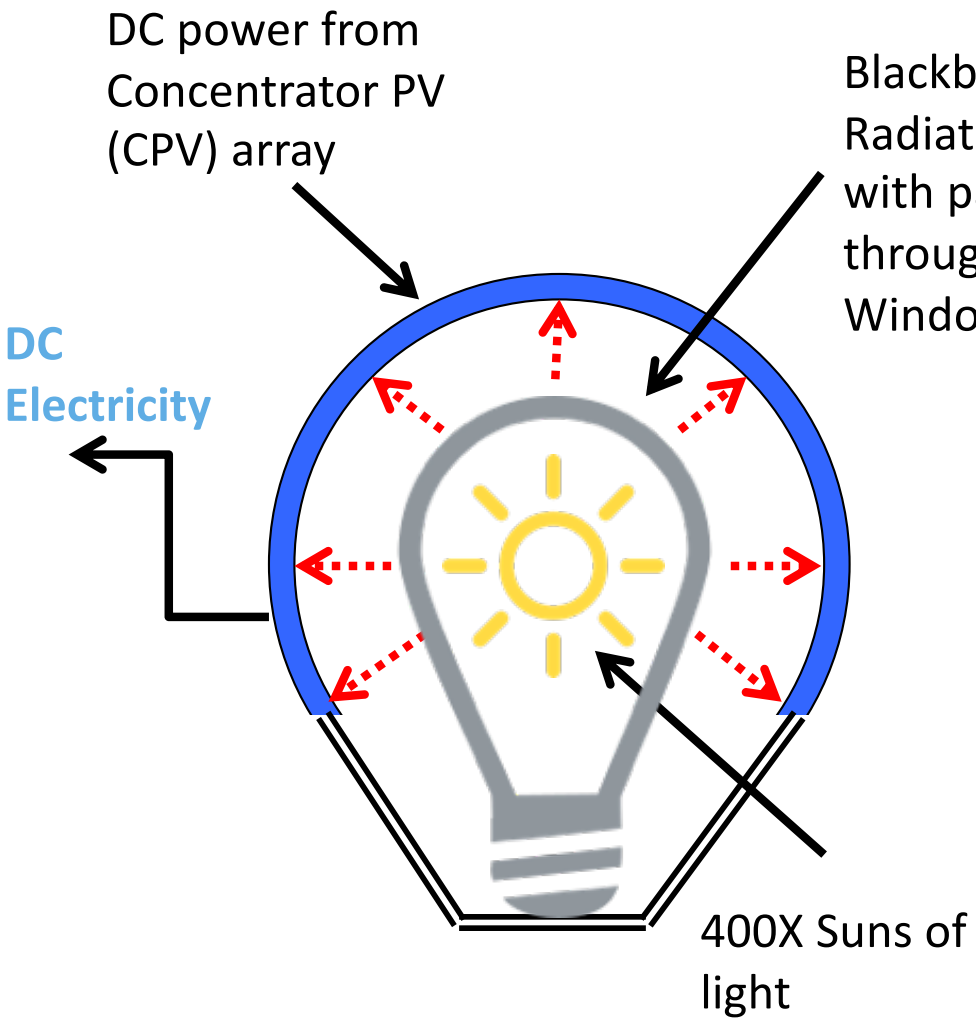
# How the PV SunCell® Works



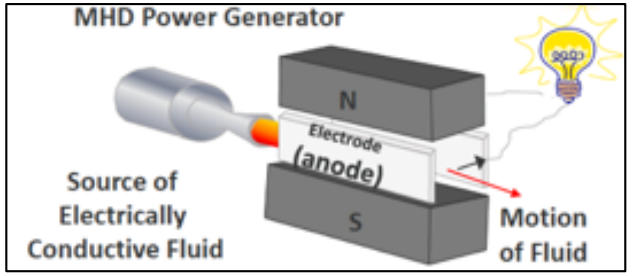

- Leverages Thermal SunCell lab testing experience
- System for direct electrical power conversion using existing PV cells
- Moving into hardware development phase

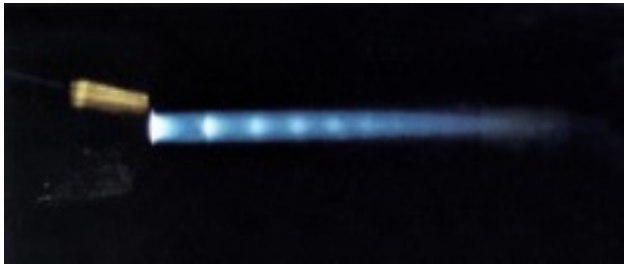
Development Design

# MHD SunCell® Breakthrough Potential

## Direct power extraction (DPE), emerging technology to directly convert thermal & kinetic power to electrical power

- Advantages:
  - Basic R&D has been supported by energy agencies
  - Offers breakthrough power efficiency (80%+)
  - Simplest system physically possible
  - No moving mechanical parts
  - Extraordinarily compact size with DC power output (power density of 100+ MW/liter theoretically possible)

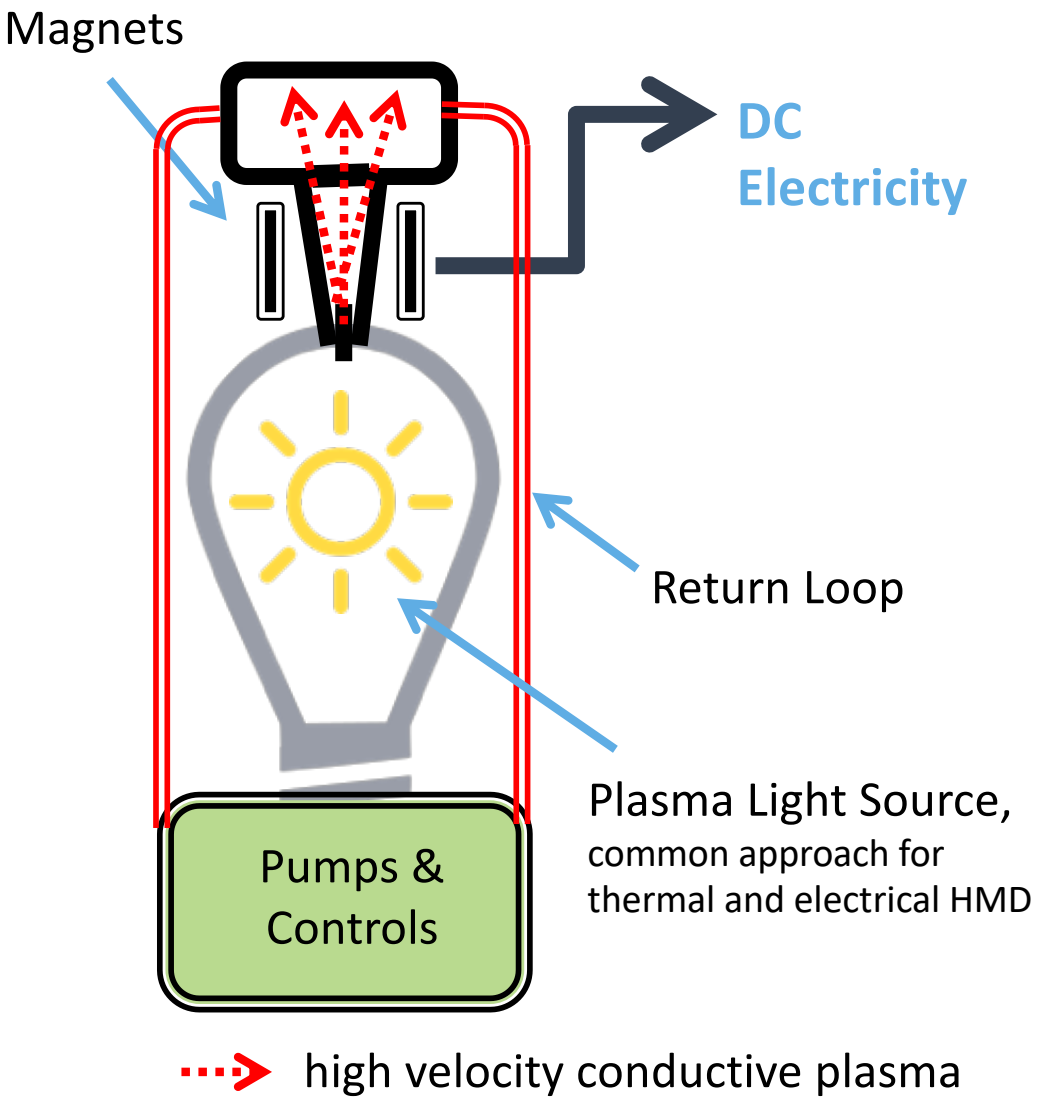


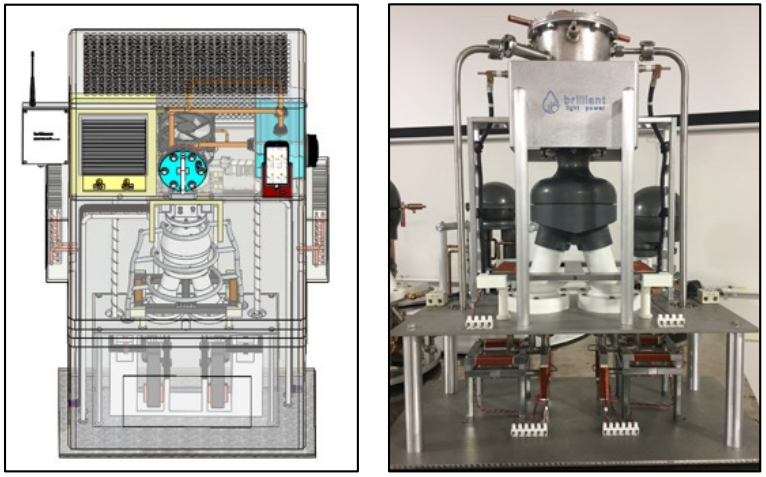
- MHD SunCell® unique aspects:
  - Heat exchanger is an infrared radiator with no moving parts or coolant, self adjusts to heat load as T^4
  - Silver working medium protects rather than corrodes the refractory metal electrodes
  - Conductivity 100,000X that of ion-seeded combustion flame with no loss of conductivity with temperature drop in MHD channel
  - High unconverted heat recovery due to molten silver recirculation rather than gases

## Revolutionary DC Power Solution Potential

# How the MHD SunCell®works




- Theory solved, IP filings
- Prototype MHD generators have demonstrated some large-scale commercial feasibility.
- MHD design support from outside experts
- Prototype design drawings
- Step-by-step prototype development that leverages thermal system
- Exciting approach that requires greater development



Development Models

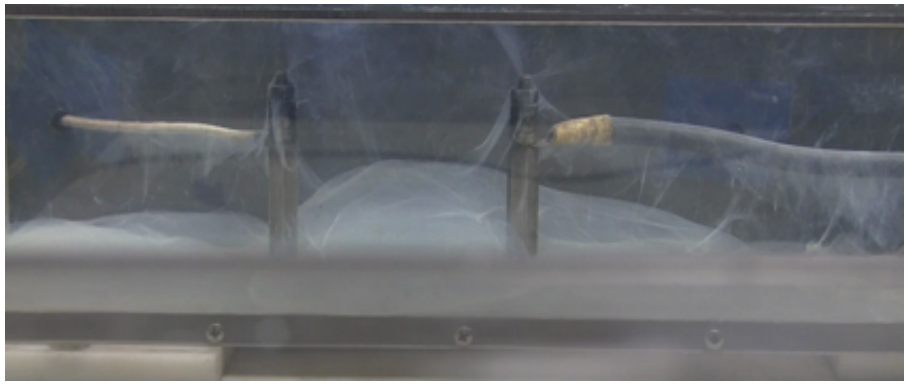
# SunCell® Energy Solutions

| Advantages | Thermal SunCell® | Power SunCell® |
|---|---|---|
| Technology | Proprietary SunCell® | Proprietary MHD or PV SunCells® |
| Environmental | Non-polluting, water or hydrogen as fuel | Non-polluting, water or hydrogen as fuel |
| Operation | Continuous thermal | Continuous DC |
| Safety | Safe, sealed system | Safe, sealed system |
| Lease Model | Lease power model with system revenue partners (~$0.02/kWh thermal) | No metering, lease power model per diem (~$0.05/kWh DC) |
| Scale | 100kW to MWs thermal | 10kW to MWs DC or AC with converter |

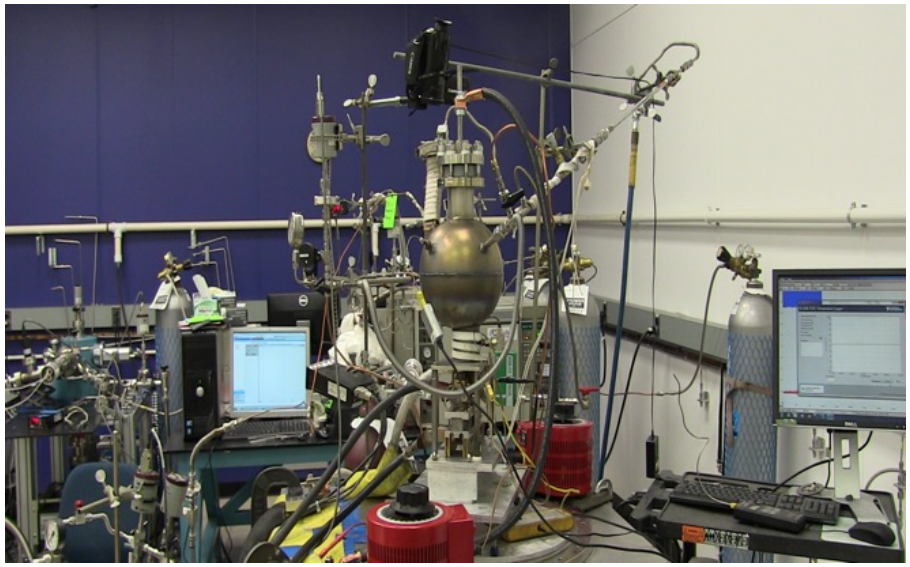
# Novel Hydrino® Compounds

- Hydrino® Compounds:
  - Are a new discovery
  - Exhibit magnetism that is unknown to the elemental composition.
  - Comprised of hydrinos, based on initial data
- The elemental composition of reactants to form hydrino hydrogen products is known to 99.99%.
- Hydrino product samples are now available for independent testing

Exciting New Materials Opportunities



Hydrino® Compounds



Hydrino® Compound Production Cell

# Energetic Materials Market

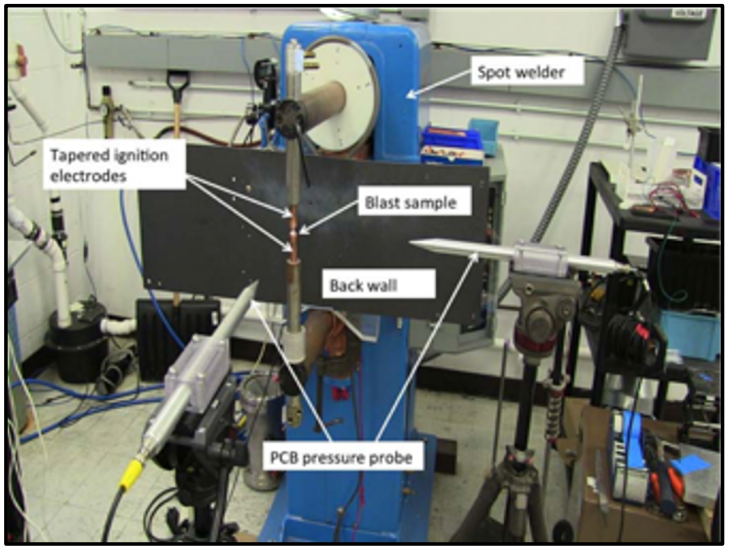
- Global market forecast from about $23.8 billion in 2017 to $31.2 billion by 2022
- Primary segments:
  - mining,
  - construction,
  - military defense,
  - oil and gas
- Non-military segments focused on reducing raw material and transportation costs.
- Safety is ALWAYS paramount

Ref: BCC Research, Explosives - Global Markets to 2022, Mar 2018; Applied Market Research , Industrial Explosives, Aug 2018

Validation

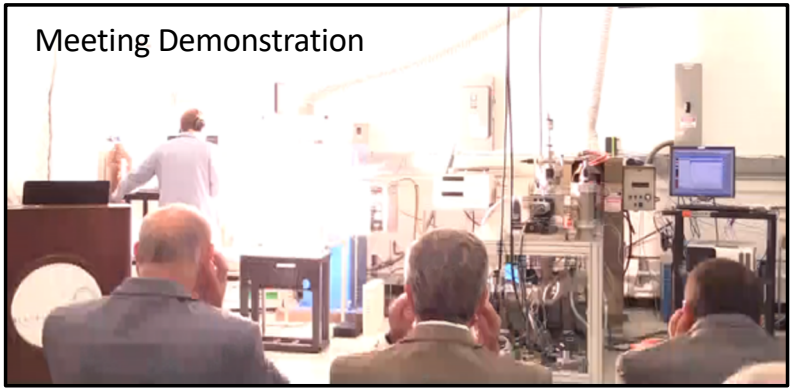
# Energetic Materials Validation

- Based on the shockwave propagation velocity and the corresponding over pressure, the high-current ignition of water in a silver matrix was measured to *produce a shock wave that was 10 times greater than an equivalent weight of TNT.*
- Dr. Joseph Renick, former Chief Scientist at Applied Research Associates analyzed the characteristics of Brilliant Light Power's energetic hydrino reaction.
- Pursuing commercial partners:
- DoD opportunities (license for government R&D)



Test Setup


Early Testing




Water as high power density, fast kinetics fuel to develop high pressure shock wave

brilliant LIGHT POWER

# Partnership Business Model to Scale Rapidly

**Brilliant Light Power**

- Finance
- Legal
- HR
- Marketing
- Innovation
- Supply Chain
- Service & Support
- Business Development: Stationary, Motive, Thermal, Innovation

| Design | Manuf. | Sales | Service | Distribution |
|---|---|---|---|---|
| • Detailed Design<br>• Test & Validation<br>• Certification<br>• Regulations<br>• Life Testing<br>• Safety<br>• IP to BrLP | • Contract Manufacturing<br>• Depot Repair<br>• Sell ONLY to BrLP<br>• Supplier Management<br>• Asset Management<br>• Mfg Engr.<br>• IP to BrLP | • Thermal<br>• Inverter<br>• DER Grid*<br>• Urban Grid<br>• Telemetry<br>• Support | • Install Certs<br>• Field Service<br>• Regional Needs<br>• IP to BrLP | • Territory Sales<br>• Inventory<br>• Government Relations |

Partners

*Disruptive power company of the future*

brilliant LIGHT POWER

# Levers to Achieve Future Valuation

- **Hydrino® Theory & Identification:**
  - Expand universe of independent validations: theory, Hydrino® identification, reactions, and systems
- **Power Engineering:**
  - Engineer SunCell® generators for thermal power
  - Develop SunCell® electrical power generation with concentrator photovoltaic array (PV) and window system and magneto hydrodynamics (MHD), exploiting a novel proprietary thermodynamic cycle.
  - Pioneering innovations and blocking intellectual property regarding the SunCell® power source and electrical conversion.
- **Corporate partners for commercial SunCell® products:**
  - Outsourcing development of components of advanced SunCell® power source and MHD converter when beneficial.
- **Applications Businesses:**
  - Expand the reach on Hydrino® opportunities to derivative markets such as novel compounds, energetic materials, molecular modeling software business, etc.


Reinventing electric power …

*safe, accessible, affordable, clean*