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SYSTEMS

Transient Plasma Systems Reports Significant Breakthroughs in Ignition Technology, Bringing it Closer to Commercialization

Innovator of high-power plasma systems surpasses critical milestones in its plan to bring its technology to market across various applications, including vehicle ignition

TORRANCE, Calif., Dec. XX, 2021 — [Transient Plasma Systems Inc. \(TPS\)](#), which develops and markets nanosecond pulsed power systems that unlock the potential of low-temperature plasma to be used in a variety of applications, today announced that it has made significant advances in its ignition technology, including development milestones in control software, plug configuration, and cost reduction, narrowing the gap to commercialization.

Advanced ignition technologies, such as those offered by TPS, have been widely recognized as the last frontier to achieving higher combustion efficiency and lower emissions for gasoline powered engines. Traditional ignition systems when used to enhance internal combustion engine (ICE) efficiency and lower emissions are handicapped with high energy consumption and poor durability leading to an unattractive cost of ownership.

[The TPS ignition system](#), based on nanosecond pulsed power technology, has demonstrated promising results in engine tests at automotive OEMs, Tier-1 suppliers and national laboratories. TPS technology has been proven to improve fuel efficiency by as much as 20% at low load points (such as highway driving) and 10-15% over an entire drive cycle. The keys to commercialization have been demonstrating cost, size and optimized energy consumption in line with automotive requirements.

The breakthroughs achieved by TPS in 2021 include:

- A robust control software that allows for tailoring and optimizing the energy used for ignition during engine operating cycles.
- An innovative plug configuration that reduces the breakdown voltage, resulting in significant cost and size reduction of the power supply.

“We believe the nanosecond pulsed power technology from TPS is unique and can be applied across a wide variety of applications,” said Jim Demetriades, executive chairman of Transient Plasma Systems and CEO of [Kairos Ventures](#), the Los Angeles venture capital firm funding TPS. “In particular, TPS technology offers a groundbreaking approach to reducing emissions from combustion engines and improving the environment. it is vital that the transportation world continues to improve the combustion engine technology.”

Despite the rush towards EVs, combustion engine vehicles continue to be a significant part of the car manufacturers’ business driving revenue and profits. These vehicles have long lifetimes and will continue to occupy the roads next to clean EVs for years to come. It’s imperative that the emissions from these combustion engine vehicles be minimized by employing the latest technologies such as advanced ignition.

“The ignition technology advances made by TPS in 2021 have enabled us to significantly narrow the gap to commercialization,” said Dan Singleton, CEO and co-founder of Transient Plasma Systems. For advanced ignition systems to be adopted, cost, size and lower energy consumption are critical. We feel confident that our technology is ready to usher in the benefits of lower emissions, and lead the industry’s push toward cleaner mobility.”

TPS technology has other applications as well, such as [emissions reduction](#) from diesel engines and commercial kitchen exhaust systems, plasma treatment of surfaces for cleaning, as well as ozone generation.

Results obtained from work performed under a recent DOE grant showed nearly 80% reduction in particulates from a 1.8 HP diesel engine. The TPS solution is not expected to need regeneration, unlike conventional diesel particulate filters (DPF), greatly reducing maintenance and improving regulatory compliance.

TPS has also successfully demonstrated its kitchen exhaust solution by a 90 %reduction in particulates and odor, in a test with a leading commercial kitchen equipment OEM.

Lastly, the [TPS surface treatment solution](#) has been shown to very effective in treating hard-to-bond materials like ethylene propylene diene monomer rubber (EPDM) as well as depositing dense, defect free coatings for biomedical applications, corrosion protection and barrier coatings. It has also achieved precision functionality in coatings via finely tuned polymerization.

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About Transient Plasma Systems Inc. (TPS)

Transient Plasma Systems (TPS) designs and manufactures nanosecond pulsed power systems that enable commercial, industrial and research applications across a broad range of areas, including combustion, emissions remediation, surface treatments, medical devices, and agriculture. The foundational technology was developed at the University of Southern California (USC), with over a decade of support from the Department of Defense. The company was spun out of USC with the express purpose of translating the technology into products and systems to address demands in both military and commercial markets. To learn more, please visit www.transientplasmasytems.com.

About Kairos Ventures

Kairos Ventures invests early, often during the formative stages of a company, and works closely with the world’s leading scientists to commercialize their technologies. Depending on the stage of development and the capital requirements of each venture, they make investments between \$150,000 and \$20 Million. While KV investors are hands-on they also recognize that it is the entrepreneurs’ sweat, hard work and perseverance that will drive the growth of their companies. They strive to ensure that the founding team, who make the early sacrifices in pursuit of their venture, retain the majority of the ownership in their companies. In addition to providing early-stage capital, KV leverages their expertise and extensive network of professionals specializing in all disciplines required to build a successful company, including legal, finance, marketing, operations, business development and HR. They provide these services to early stage companies in their portfolio to allow the entrepreneurs to focus their energy on continuing to innovate and pushing the envelope in their respective fields.

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