

Performance model of vacuum arc thruster with inductive energy storage circuit. Author links open overlay panel Song Bai, Ningfei Wang, Kan ... A vacuum arc thruster is a type of micro-propulsion device that is based on pulsed ablative vacuum arc discharge. It was developed around 2000 [5] and was tested in orbit for the first time in 2015 [6 ...

A new scheme of pulsed voltage adding using inductively charged Blumlein lines has been proposed and experimentally demonstrated. The circuit principle is explained based on the analogy with capacitively charged Blumlein lines. In the experiments, striplines have been used for inductive energy storage, and SiC power devices have been used as the opening ...

Energy harvesting represents an alternative power source technique to realize battery-less implantable medical device. In this paper, a specific kinetic energy harvester has been considered []. The electrical signal produced by a kinetic energy harvester is typically in AC form; therefore, the scavenged energy cannot directly power a device or a circuit and it cannot ...

Results are compared with experimental measurements which demonstrate a 31 mW/g power density from alternating environmental magnetic fields in the 10 mT/360 Hz range. ... thermal [7] and RF [8] energy harvesting devices as well as complementary power management and storage systems [9] can be ... Inductive energy receivers can collect energy ...

tral devices for electronics and energy storage. While they do not conduct direct current, they show hysteresis under voltage cycling, as presented in Fig. 1(C), which also shows a general characteristic of hysteresis in current-voltage curves: the effect becomes amplified when the voltage scan velocity increases.

energy transmission: the energy can flow from the grid to the EV storage device or in the opposite direction if some other grid-connected users need it. This allows the use of the energy collected inside the EV storage system when needed, thus avoiding stress on the electrical grid. A wireless V2G provides benefits in terms of a

When an inductive circuit is completed, the inductor begins storing energy in its magnetic fields. When the same circuit is broken, the energy in the magnetic field is quickly reconverted into electrical energy. This electrical energy appears as a high voltage around the circuit breakpoint, causing shock and arcs.

prepulse formed by an inductive energy storage device E Kh Baksht, Aleksei N Panchenko and Viktor F Tarasenko-Stimulated emission and amplification characteristics of an excimer XeCl laser emitting pulses of 0.5 s duration S V Efimovski, Anatolii K Zhigalkin, Yu I Karev et al.-Electric-discharge high-peak-power CO

laser

inductive energy storage experimental device diagram video. Modelling inductive charging of electric cars in an experimental . efficient energy transfer using inductive coupling always deals with high frequencies, and it is the Qi standard that provides frequencies from 110 kHz to 205 kHz for low power up to 5 W,

An inductive energy storage device [6] in combination with trigger-less ignition methods [7] was implemented. This configuration presents many benefits, such as a decrease in the size of a thruster, a decrease in the operating voltage required, and no need of an igniter. Most importantly, the VAT is also suitable for use in microsatellites or a ...

Although the topology of energy storage device in [24] only needs one inductor, each cell should be configured with four switches. In general, the equalization topologies based on inductive energy storage have high equalization accuracy and perfect functionality, but often have more complex structure and control method.

Efficient long-pulse XeCl laser with a prepulse formed by an inductive energy storage device ... An efficient electric-discharge XeCl laser is developed, which is pumped by a self-sustained discharge with a prepulse formed by a generator with an inductive energy storage device and a semiconductor current interrupter on a basis of semiconductor opening switch (SOS) diodes.

energy storage (CES) and inductive energy storage (IES) [9], [12], [13]. By utilizing these energy storage methods, a variety of ... experimental investigation on IES circuit behavior and voltage ... driver, and MOSFET devices are configured in one-to-one correspondence, so that the independence and simultaneity of the MOSFETs are guaranteed ...

--A high-voltage pulse generator with an inductive energy storage is described. Its operation is based on the current interruption by a thyatron. It was shown that a T ... < 2-500/20 thyatron is capable of reliably interrupting the current with an amplitude of 800-850 A in an inductive energy storage, forming from a low-

TRIDENT - A MEGAVOLT PULSE GENERATOR USING INDUCTIVE ENERGY STORAGE D. Conte, R. D. Ford, W. H. Lupton, I. M. Vitkovitsky Naval Research Laboratory Washington, D.C. 20375 Abstract A megavolt level pulse generator, TRIDENT, has been constructed utilizing an inductive store as the primary pulse forming device.

The purpose of an opening switch is simply to stop the flow of current in the circuit branch containing the switch and to accomplish current interruption, the opening switch must force the current to transfer from the switch to a parallel circuit branch and then withstand the voltage generated by the current flowing through the load. The purpose of an opening switch is simply ...

# Inductive energy storage experimental device

Results are presented of experimental investigations of a CO<sub>2</sub> laser pumped by a self-sustained discharge from a generator with an inductive energy storage device and a semiconductor current chopper. It is shown that the energy stored in the inductance of the discharge circuit can form a prepulse capable of depositing most of the energy in the active mixture for nearoptimum ...

The increasing Research and Development in the field of High energy density devices like Microwave tubes, Lasers etc. have led to the development of various circuit models for the production of Pulsed power. ... August 2017 2211 Voltage Adding of Pulse Forming Lines Using Inductive Energy Storage Liang Yu, Yu Feng, Taichi Sugai and Weihua Jiang ...

some inductive energy harvesting device prototypes, but most cannot provide enough power and ... experimental verification. The work we do should be helpful to promote the practical implementation ... to the HVPL, protection control, energy storage and discharge circuit to relieve the effect of current fluctuations, high frequency conversion ...

Voltage adding of pulse forming lines using inductive energy storage . In the experiments, strip-lines have been used for inductive energy storage and SiC power devices have been used as the opening switches. The experimental results have . ????? ???????

The energy storage mechanism operating in carbon-based supercapacitors using ionic liquids as electrolytes is not yet fully understood. In this paper, the interactions of ions of two widely used ionic liquids, i.e. EMImTFSI and EMImBF<sub>4</sub>, with a high specific surface area microporous carbon are investigated. Galvanostatic cycling experiments performed on each ...

To reduce the restriction of miniaturization in power system, a vacuum cathode arc thruster (VAT) was used in this study. An inductive energy storage device [6] in combination with trigger-less ignition methods [7] was implemented. This configuration presents many benefits, such as a decrease in the size of a thruster, a decrease in the ...

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