

The equivalent circuit of the pulse current source is shown in Figure 13. Figure 14 shows the current path diagram of the inductive charging stage, ... Process six is the transfer process of inductive energy storage; in the process, the switches S a-i ...

The common energy storage methods in the current pulse power systems are capacitive energy storage (CES) and inductive energy storage (IES), each with its own advantages and disadvantages.

Pulsed power generators using magnetic pulse compression circuits have become popular both for research in the bioelectric field and for industrial applications of pulsed power. Pulsed power generators using inductive energy storage and opening semiconductor switches are able to generate pulsed power with a nanosecond or subnanosecond pulse ...

The cooling cost of high temperature superconductors is much lower than that of low temperature superconductors. By now, a few HTSPPTs have already been tested based on inductive energy storage system [6], [7], [8] and capacitive energy storage system [9]. High energy transfer efficiency can be obtained by using a HTSPPT in a capacitor-based pulsed power ...

The pulse amplitude obtained on the load will be higher than that on the primary energy storage unit so as to get a higher voltage gain. In ref., a solid-state Marx circuit using inductive energy storage is proposed. Inductance is added to each stage of Marx as the energy storage element and charged by the primary energy storage element capacitor.

In this paper, the principle of inductive energy storage (IES) is applied to twisted pair wire (TPW), served as energy storage unit for generating nanosecond pulse. As a kind of transmission line, the electromagnetic field constraint of TPW is realized by twisting, so it has greater bent flexibility than coaxial transmission line, which makes it ...

The application of inductive energy storage in the generation of high-current pulses has attracted considerable attention during recent years. In this article, a new inductive high-current pulse generator circuit is proposed based on XRAM (MARX spelled backward) current multiplier converter concept and multistage pulse transformers by using power electronic switches. This ...

An inductive energy storage pulse power system is being developed in BARC, India. ... An electric circuit simulation of a 25-GW pulse generator and an electrostatic simulation for a refractive ...

XRAM (MARX spelt back words) is currently a very important circuit for high current pulse generators. In our previous studies, an XRAM-like circuit was proposed based on multiple pulse transformer modules and a

capacitor connected in parallel. Compared with the traditional XRAM circuit, the same number of inductive energy storage modules can be used ...

A compact pulsed high-voltage generator has been developed for applications in pulsed gas discharges. Its operation principle is based on inductive energy storage and it uses a static induction thyristor as the opening switch. It is capable of generating pulsed high voltage of ~15 kV with pulse width of ~200 ns for load resistance of 1 k Ω . This generator can be ...

technical review of the major circuit topologies for the inductive PPSs. Index Terms--Circuit topology, electromagnetic railgun, inductive energy storage, inductive pulsed power supply, meat grinder, XRAM. I. INTRODUCTION ITH the advantages of high muzzle velocity and low money cost, the electromagnetic railguns have become a

For pulsed power generation, the energy storage unit is one of the most fundamental components. The common energy storage methods in the current pulse power systems are capacitive energy storage (CES) and inductive energy storage (IES), each with its own advantages and disadvantages. In this study, we have tested a circuit using both CES and ...

By adopting a simple inductive energy storage (IES) circuit [7] and the "triggerless" ignition method [8], the mass of the propulsion system can be decreased to less than 200 g, with a specific impulse of >1000 s and a power level ...

Extended Summary ? pp.549-554 -4- Effect of Pulse Width on Ozone Yield using Inductive Energy Storage System Pulsed Power Generator Ippei Yagi Student Member (Iwate University, t3308022@iwate-u.ac.jp) Seiji Mukaigawa Member (Iwate University, mukaigaw@iwate-u.ac.jp) Koichi Takaki Member (Iwate University, takaki@iwate-u.ac.jp) ...

Based on the energy storage circuit developed by Schein et al. [30], we tried to design a preliminary pulse discharge circuit and improve the circuit. Finally, the inductor storage circuit suitable for this experiment was designed and displayed in Fig. 7. Download: Download high-res image (155KB) Download: Download full-size image; Fig. 7. The ...

we propose a solid-state Marx circuit using inductive energy storage, where inductors play the role of principal energy storage element. When combined with an opening switch, the inductor ... inductive Marx circuit, pulse generation, pulsed power systems. I. INTRODUCTION P ULSED power is an electrophysical technology that has been rapidly ...

Solid-state Marx generator circuits have been widely studied in recent years. Most of them are based on capacitive energy storage (CES), with the basic principle of charging in parallel and discharging in series. In this article, we propose a solid-state Marx circuit using inductive energy storage, where inductors play the role of principal energy storage element. ...

An inductive energy storage pulse power system is being developed in BARC, India. Simple, compact, and robust opening switches, capable of generating hundreds of kV, are key elements in the ...

Due to its advantage of energy density, inductive pulse power supply (IPPS) has become a promising type of power supplies for the electromagnetic launcher (EML) [1, 2].According to electrical ...

In our previous studies, an XRAM-like circuit was proposed based on multiple pulse transformer modules and a capacitor connected in parallel. Compared with the traditional XRAM circuit, the same number of inductive energy storage modules can be used to generate higher current pulses.

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