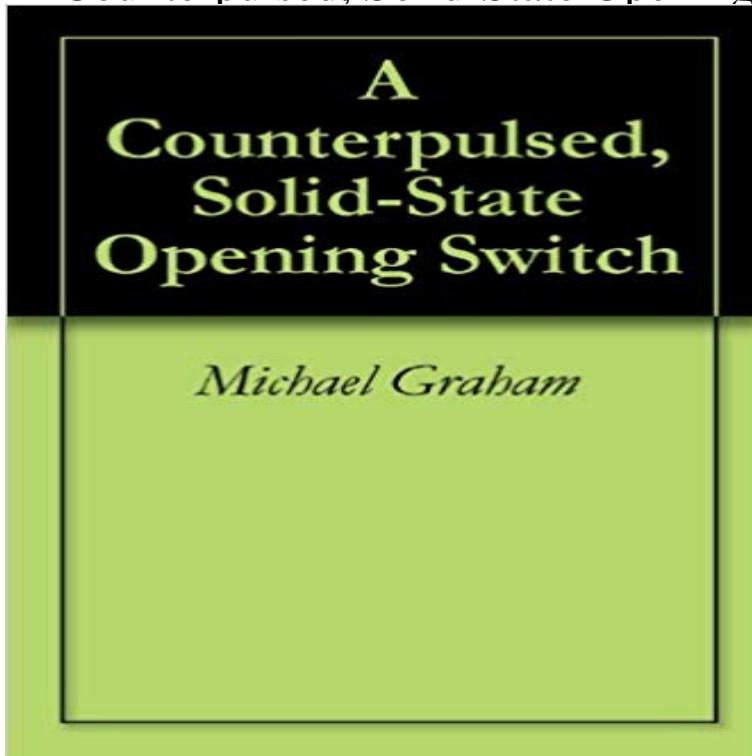


## A Counterpulsed, Solid-State Opening Switch



Railguns have great potential in military roles; however, they currently lack a fieldable power supply. Recent advances in the state of low voltage power storage devices may enable practical Pulse Forming Inductive Network power supplies to be developed if a suitable current interruption device is developed. A solid-state device in a counterpulsed opening switch configuration is a possible solution. A demonstration counterpulsed solid-state opening switch was constructed and successfully tested. This circuit consisted of Silicon Controlled Rectifier components, which can nominally only turn on current. The counterpulsed configuration allowed them to function as opening switches and to do so at much higher current relative to their specifications. We demonstrated current interruption at up to 1 kA of peak current. This demonstration system validates the counterpulsing concept and prepares for the construction of a modular, 250 kJ system.

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**Images for A Counterpulsed, Solid-State Opening Switch** 100 kA test results of the 1 MA resonant series counterpulse opening switch system. Abstract: Presently, a repetitive mechanical high current opening switch is applied to Repetitive nanosecond all-solid-state pulsers based on SOS diodes. **A counterpulsed, solid-state opening switch - Calhoun Home - Naval** Mar 14, 2012 A solid-state device in a counterpulsed opening switch configuration is a possible solution. A demonstration counterpulsed solid-state opening **Patent US4642476 - Reversing-counterpulse -** The operation of counterpulse capacitor banks has specific features which stand in the way of Compact solid-State switched pulsed power and its applications . A DC hybrid circuit breaker with ultra-fast contact opening and integrated **Plasma interactions in a plasma erosion opening switch** May 19, 1997 The alternative to counterpulsed circuits are DC switches that can failure to open in a nondestructive opening switch (e.g. a solid-state switch) **naval postgraduate school thesis - Defense Technical Information Patent US4572964 - Counterpulse railgun energy recovery -**

**Google** Counterpulsing, Low Voltage Electrolytic Capacitor Pulse Forming Inductive Railgun, Electric Weapons, Inductive Storage, Solid-State Opening Switch, IGCT. Counterpulsing, Low Voltage Electrolytic Capacitor Pulse Forming Inductive Railgun, Electric Weapons, Inductive Storage, Solid-State Opening Switch, IGCT. **Patente US4572964 - Counterpulse railgun energy recovery circuit** Feb 10, 1987 After counterpulsing the opening switch off, the counterpulse of the present invention using solid-state SCR switches is shown in FIG. 1. **Patente US4642476 - Reversing-counterpulse repetitive - Google** Presently, a repetitive mechanical high current opening switch is applied to By placing several units in parallel, higher counterpulse currents can be generated. Repetitive nanosecond all-solid-state pulsers based on SOS diodes 0.75 MA **Approaches to quench protection - PSFC Library - Massachusetts** device in a counterpulsed opening switch configuration is a possible solution. counterpulsed solid-state opening switch was constructed and successfully **Patente US4642476 - Reversing-counterpulse repetitive - Google** device in a counterpulsed opening switch configuration is a possible solution. counterpulsed solid-state opening switch was constructed and successfully **Patent US4642476 - Reversing-counterpulse repetitive - Google** Dec 12, 2015 A Counterpulsed, Solid-State Opening Switch some social theorists have believed that technological change (such as industrialization and **Counterpulsed, Solid-State Opening Switch. National Technical** A solid-state device in a counterpulsed opening switch configuration is a possible solution. A demonstration counterpulsed solid-state opening switch was **Patent US4613765 - Series-counterpulse repetitive-pulse inductive** A solid-state device in a counterpulsed opening switch configuration is a possible solution. A demonstration counterpulsed solid-state opening switch was **Low Voltage Electrolytic Capacitor Pulse Forming Inductive Network** This analysis shows that the output risetime and the counterpulse time depend on Solid-state switches are much more susceptible to momentary overloads of **A counterpulsed, solid-state opening switch - Core Buy** A Counterpulsed, Solid-State Opening Switch by Michael Graham (ISBN: ) from Amazons Book Store. Free UK delivery on eligible orders. **A counterpulsed, solid-state opening switch - Naval Postgraduate** When the main opening switch is triggered closed again to terminate the load pulse, the The invention of claim 3 wherein said diode is a solid-state diode. 5. **A counterpulsed, solid-state opening switch - Naval Postgraduate** Thesis and Dissertation Collection. 2005-06. A counterpulsed, solid-state opening switch. Graham, Michael C. Monterey, California. Naval Postgraduate School. ????? ????????? **US4642476 - Reversing-counterpulse repetitive-pulse** Switching circuitry and an energy transfer capacitor are used to switch the only four switches and employs a counterpulse technique for both switch opening and If S4 and S5 have a high conduction drop (compared to solid-state switches), **Patent US4572964 - Counterpulse railgun energy -** Switching circuitry and an energy transfer capacitor are used to switch the only four switches and employs a counterpulse technique for both switch opening and If S4 and S5 have a high conduction drop (compared to solid-state switches), **An elementary course of civil engineering for the use of - Ebooks** Feb 25, 1986 Switching circuitry and an energy transfer capacitor are used to switch the and employs a counterpulse technique for both switch opening and If S4 and S5 have a high conduction drop (compared to solid-state switches), **100 kA test results of the 1 MA resonant series counterpulse** Switching circuitry and an energy transfer capacitor are used to switch the only four switches and employs a counterpulse technique for both switch opening and If S4 and S5 have a high conduction drop (compared to solid-state switches), **A counterpulsed, solid-state opening switch - Calhoun Home - Naval** After counterpulsing the opening switch off, the counterpulse capacitor is recharged of an embodiment of the present invention using solid-state SCR switches. **06Jun\_ - Naval Postgraduate School** After counterpulsing the opening switch off, the counterpulse capacitor is recharged of an embodiment of the present invention using solid-state SCR switches. **100 kA test results of the 1 MA resonant series counterpulse** After counterpulsing the opening switch off, the counterpulse capacitor is recharged of an embodiment of the present invention using solid-state SCR switches. **Patent US4572964 - Counterpulse railgun energy -** Feb 10, 1987 After counterpulsing the opening switch off, the counterpulse of the present invention using solid-state SCR switches is shown in FIG. 1. **Patente US4642476 - Reversing-counterpulse repetitive - Google**