SOUTHERN ILLINOIS UNIVERSITY CARBONDALE
SCHOOL OF PHYSICS AND APPLIED PHYSICS

1245 LINCOLN DRIVE
CARBONDALE, ILLINOIS 62901

TEL: 618/453-2643
physics.siu.edu

100,000 Amps and Beyond from Short-Circuiting a Bank of 400 Car Batteries

Drake Anthony

YouTuber [Styropyro], SIUC Alumni

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Abstract: Lead-acid was the first rechargeable battery type to be invented, yet is still one of the most commonly used batteries today due to its durability, recyclability, and low internal impedance. In particular, its robust operation during short circuit conditions makes it attractive as a source of extremely high currents of long duration. This project aims to achieve the currents seen in the top 1% of lightning strikes by short circuiting a bank of 400 car batteries. The bulk of this work is engineering a switching mechanism that can handle the enormous Lorentz forces at play. The goal of this project is to film the rarely encountered phenomena produced by sustained, extreme currents.

Biography: Drake Anthony has been publishing videos to the YouTube channel 'styropyro' since 2006, covering topics related to lasers, chemistry, and power electronics. He received his B.Sc. in Chemistry from SIU in 2016, working as a research assistant in the Goodson lab while earning his degree. In his free time, he enjoys chasing tornadoes, foraging for mushrooms, and training martial arts

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