California Science Center

CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)
Eric Alvarez; John B G Wilson

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)
Tuned Circuits

Science Fair Use Only

J0601

Division
_X_ **Junior (6-8)** _ **Senior (9-12)**

Preferred Category (See page 5 for descriptions.)
6 - Electricity & Electronics

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)
Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

Purpose: Increase voltage by use of a fast on-off switch and a tuned circuit
Research: We built a tuned circuit and a DC to AC converter that is adjustable. We had to pick a frequency that was not too low or too high. If the frequency was too low, the parts would be too big. If the frequency was too high, we would loose energy due to the skin effect within the wire. After we picked the right frequency, we built an inductor from a glass bottle, and we bought an unpolarized capacitor (AC type). We built a DC to AC converter from a speaker and a function generator. We spent time adjusting the frequency so that it would match the frequency of the tuned circuit. The volt meter we used would not measure the voltage, so we heard and saw the size of the sparks produced inside the on-off switch. We think the volt meter wouldn't work because the voltage was pulsing very fast.
Conclusion: Sparks and noise that get bigger when we pick the right frequency. The sparks and noise got smaller when we adjusted the frequency higher and lower.

Summary Statement (In one sentence, state what your project is about.)
Making voltage bigger by using a fast on off switch and a tuned circuit.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.
Father purchased parts; father provided training and transportation.